Environmental Profile of Spain 2017

GOBIERNO DE ESPAÑA

MINISTERIO PARA LA TRANSICIÓN ECOLÓGICA

Environmental Profile of Spain

2017

GOBIERNO DE ESPAÑA
MINISTERIO PARA LA TRANSICIÓN ECOLÓGICA

Madrid, 2019

The Environmental Profile of Spain 2017 is a report prepared by the Directorate-General for Biodiversity and Environmental Quality (National Focal Point of the European Environment Agency in Spain) reporting to the Ministry for Ecological Transition. This annual series, which began with the Environmental Profile of Spain 2004, was designed to inform the widest possible audience about the state of the environment in Spain, providing readers with information broken down by autonomous community and with reference to the European Union.

This edition comprises an initial section containing an integrated analysis of two key environmental issues, a second section made up of 81 indicators spread across 18 chapters, and a third section providing information by autonomous community and drafted in partnership with the Regional Focal Points belonging to the European Environment Agency's EIONET network. Since the 2012 edition, a special version of the publication has been produced for mobile devices.

Publication of this edition coincided with a change of government in Spain and the consequent restructuring of its ministerial departments. It is therefore possible that some of the sources referred to in this report appear under the name they bore when the source was consulted.

Director:
Javier Cachón de Mesa

Co-ordinators:
Emilio Canda Moreno
Rafael Andrés David Fernández

Translation:
Veritas Traducción y Comunicación, SL

Photographs:
Tragsa Group photo archive and Creative Commons CC0 copyright-free images

MINISTRY FOR ECOLOGICAL TRANSITION

Published by:

Technical Undersecretariat-General
Plaza de San Juan de la Cruz, S/N
28004 Madrid
www.miteco.gob.es

NIPO: 013-18-133-3
State Publications Catalogue
http://publicacionesoficiales.boe.es/

Available for:

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

Environmental Profile of Spain 2017

Indicator-based report

CONTENTS

INTRODUCTION

As Minister for Ecological Transition, it is a real pleasure for me to introduce this year's Environmental Profile of Spain, an edition that continues a series that began in 2004.

Since then, year after year, the Environmental Profile of Spain has set the benchmark for detailed information about the state of the environment in this country and the interrelationships between its constituent components. The data it provides are vital to conserving and enhancing our environment for current and future generations.

Given that a well-informed society is a responsible one, this report is of paramount importance. In this regard, the Environmental Profile of Spain is one of our main tools for raising public awareness about sustainability.

The report is deeply familiar to me, not only because as Secretary of State for Climate Change I was tasked with introducing several of the previous editions, but also because the analyses provided by the indicators on which it is based are crucial to identifying many of the environmental and energy challenges that we now face.

It is only by starting from a solid base that we can evaluate the progress made in achieving the objectives that a forward-looking ministry focused on bringing about sustainable technological transition must set. And this is where the importance of this publication's content lies. Making the environmental data compiled in this report widely available provides a baseline for environmental decision-making.

As it has made clear since its creation, the Ministry for Ecological Transition's mission is to encourage a sustainable development model in which combating climate change, achieving rational and equitable resource use, facilitating a just energy transition and creating jobs must necessarily be the cornerstones. Spain is extremely vulnerable to the effects of climate change, a phenomenon that is a pressing issue in itself and one that will undoubtedly increase this country's environmental commitments. Diminishing water resources (already scarce in many areas), receding coastlines, habitat and biodiversity loss in natural ecosystems, increasing numbers of forest fires and burgeoning erosion and desertification are just a few examples of the processes that climate change exacerbates. Human activity, moreover, goes beyond just contributing to climate change. Urban and industrial development and the accompanying economic growth model, as well as expansion of the production sectors necessary for economic growth, have and will continue to exert pressure on and harm our natural surroundings. Worsening air quality, increasing waste generation and energy and resource consumption (materials, water, land, etc.), waste water discharges and pressures on biodiversity are just a some examples of our impact on our environment.

This situation, common to many Western nations, has led us to adopt national, European and international regulations implementing most of the measures available to decrease or prevent the effects of these processes.

The Environmental Profile of Spain provides a clear picture of the current state of the environment. Its 18 indicator-based chapters analyse the most relevant features of our environment and the main

measures adopted to reduce the harm done. It also, of course, highlights positive aspects of our environment and natural heritage. The capacity to analyse and monitor the state of our environment and the impact human activity (productive, social, cultural, etc.) has on it is part of this report's added value, accompanied by its potential as a means of informing and communicating with the public. Transparency as regards what is being done and, equally, what has not yet been done but which is considered important to do, generates trust, and public trust in politicians provides the stimulus needed to keep working on the commitments made.

There can be no transition to a carbon-free economy and society, however, without change. We need this year's report to reveal the clear progress on climate and energy issues that will allow us to meet our commitments to the EU and, above all, to ourselves, to our people, to our environment and to our planet. We cannot continue to talk about the need for a law on climate change and energy transition; what we need is to finish drafting it then pass and implement it. Recently, the EU reached an agreement designed to help Member States meet European objectives by submitting an integrated national energy and climate plan every 10 years. This plan will complement the law, which will include national targets, contributions, policies and measures for each of the Energy Union's five dimensions: decarbonisation, energy efficiency, security, internal market and research, innovation and competitiveness.

The Environmental Profile of Spain must continue to meet the need for knowledge and transparency whilst providing a means of reporting on the situation regarding our other environmental concerns: halting biodiversity loss requires specific action and planned, managed responses. Protecting the natural environment and regulating its use and the activities that take place in it is an important step forward, but it is not the only one. Expanding Spain's Natura 2000 and national parks networks must be part of our agenda. Raising awareness about the state of our natural heritage so as to encourage sustainable enjoyment of it is fundamental to involving users in protecting it.

In this regard, I would like to highlight the efforts made to protect marine areas, as well as the need to continue to work on this topic to identify and combat the main threats they face. Many of these originate inland and are driven by our patterns of consumption and production. I am referring here to excessive use of plastics and their impact on the environment and human health when the waste they generate is not properly recycled. It is therefore essential to reduce their use and encourage alternatives. Other threats stem from economic activities that take place directly or indirectly in that environment —such as fishing or coastal tourism— and consume part of its resources. These activities are important to our national and local economies, but they must respect the environment in which they take place in order to ensure the lasting sustainability of both. A key piece in this puzzle is the circular economy and the principles it promotes. Successful development requires the involvement of both the public (as consumers) and business (as producers and drivers of consumption).

The major threat that climate change poses to our water resources and ecosystems cannot be overemphasised. But it is not the only one; others, such as irresponsible water use, water pollution and discharge of inadequately treated waste water are all equally pressing issues. Ensuring that our water bodies are in good condition and that we are properly treating waste water are fundamental

and priority goals. As the Environmental Profile of Spain shows us, we have the potential to continue to improve these areas, not only as politicians but also as businesses and manufacturers, as members of the public and as consumers.

I am confident that in the next edition of the Environmental Profile of Spain I will be describing how all these areas have improved. Working towards that goal are enthusiastic staff and a team of professionals who believe in their work and in contributing to the ecological transition our country needs. Without them, the information on which that knowledge is based would not be available. I would particularly like to acknowledge the work done by the National Reference Centres and by the Regional Focal Points in the European Environment Agency's Environment Information and Observation Network (EIONET), as well as by other experts, who have all contributed towards the Ministry publishing the information compiled in this report.

Teresa Ribera Rodríguez
Minister for Ecological Transition

FOREWORD

It is a great pleasure for me to introduce the latest edition of the Environmental Profile of Spain in the context of the new era that has begun with the creation of the Ministry for Ecological Transition. The main line of work of will be to lead Spain towards a sustainable development model in which combating climate change, achieving rational and equitable resource use, facilitating energy transition and creating jobs will be the cornerstones.

We find ourselves at a critical point where it is becoming increasingly urgent to move from theory to practice and take the action that will achieve the objectives just mentioned. The threat that climate change poses is real, as are its effects and the social and environmental consequences of the measures that we need to adopt.

Combining environmental and energy interests in the same ministry constitutes a major step towards tackling a scenario in which all of us —business and society— have a stake and an opinion and in which environmental measures must take into account those regions and parts of society most vulnerable to changes in our production model.

Beyond a necessary and effective law on climate change and energy transition, however, it is fundamental that we improve management of the other environmental imbalances that affect us. Development, whether environmental or economic, is inherently bound to water, energy and, cutting across everything, society. The changes in patterns of consumption and production must be accepted by society and business as their own.

We need to draw up a water policy in the public interest in which guaranteeing supply quality and quantity whilst maintaining environmentally rational and balanced use must be the basis on which legislation regulates its availability, utilisation and management. Circular water use must also be incorporated into our economy to reduce treatment costs, facilitate the return of water of sufficient quality to its natural courses and optimise use of water resources.

Fortunately, society is increasingly well informed. Social media and the participative campaigns they facilitate complement traditional means of communication. Problems such as the excess of plastic in modern society and its impact on human health and the marine environment are now part of habitual communication flows. Reducing the use of plastic bags and applying the principles of the circular economy to decrease waste generation and landfill help us to advance towards the new production model we need. Similar processes are under way as regards air quality, public health and conservation of ecosystems. In this respect, much remains to be done in and for our natural environment, including halting biodiversity loss and ensuring that preserving natural habitats contributes towards the recovery, conservation and, naturally, enjoyment of our natural, social and cultural heritage.

With regard to these thoughts, I would like to highlight the importance of producing a report like the Environmental Profile of Spain that collects and compiles reference data on most of the issues I have mentioned here.

The Environmental Profile of Spain 2017 sets the benchmark for detailed information about the state of the environment in Spain and the interrelationships between its constituent components. The data it provides are vital to conserving and enhancing our environment for current and future generations.

Having information available about the state of our environment and the integration of the regulations and policies adopted places us in a strong position to identify shortcomings and areas for improvement.

The Environmental Profile of Spain comprises 18 chapters that examine environmental areas and economic sectors. This reveals the effects of the resource consumption resulting from the economic activity carried out by each of the sectors and the potential pressures that consumption exerts.

We have now published 14 annual reports and the indicators analysed in them (81 in this year's edition) allow us to monitor our main environmental concerns.

As in previous editions, this report includes a section containing information broken down by autonomous community in the form of fact sheets with all the relevant social, administrative, economic and environmental variables. These provide a snapshot of the state of the environment in each of Spain's autonomous communities. This content is intended to complement, within the context of the specific work done, the reports on the state of the environment drawn up by each regional government.

This year's report opens with the section titled 'Thematic analysis: key environmental issues', which independently examines two issues of current importance or particular environmental interest. In this edition, those themes are 'Extraordinary measures to ensure urban air quality' and 'Climate change and river systems'.

Publication of the Environmental Profile of Spain also helps meet our commitment to the Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters that makes it mandatory for governments to publish an annual situation report on the state of the environment and to publish a comprehensive review every four years.

Producing such an extensive and multidisciplinary document is only possible when working with an equally broad team. The European Environment Agency's National Focal Point coordinates the contributions of the members of the Environmental Information and Observation Network (EIONET), made up of the National Reference Centres, the Regional Focal Points and other participating experts and institutions, to which I would like to express my profound thanks.

Hugo Alfonso Morán Fernández
Secretary of State for the Environment

Thematic analysis: key environmental issues

EXTRAORDINARY MEASURES TO ENSURE URBAN AIR QUALITY 1.1

Organización Mundial de la Salud

The World Health Organization (WHO) identifies the following pollutants and sets concentration limits for them: PM2.5 (10 µg/m^3 annual mean, 25 µg/m^3 24-hour mean), PM10 (20 µg/m^3 annual mean, 50 µg/m^3 24-hour mean), ozone (100 µg/m^3 8-hour mean), NO_2 (40 µg/m^3 annual mean, 200 µg/m^3 1-hour mean) and SO_2 (20 µg/m^3 24-hour mean, 500 µg/m^3 10-minute mean).

Background

One of the great challenges facing public health in the 21st century is air quality, especially in cities. Due to the industrial development seen in most of the world since the end of the 17th century, fundamental economic sectors, such as industry, transport and energy have produced severe negative externalities, mainly because of their use of fossil fuels. Emission of air pollutants is a leading negative externality because of its direct impact on the health of a large part of the world's population.

The WHO, aware of the magnitude of the problem, has published a number of studies and guidelines on it. This organisation estimated that in 2016 a massive 91 % of the world's population lived in places where its air quality guidelines are not met. According to the WHO, air pollution causes 4.2 million premature deaths worldwide every single year. Meanwhile, the European Commission has revealed that over 400 000 European citizens die prematurely each year because of the poor-quality air they breathe. While some of these deaths can be attributed to more than one risk factor (e.g. smoking), scientific evidence points to air pollution's carcinogenic nature and its harmful effect on our respiratory system. As a result, the poor quality of the air breathed in most cities has attracted government attention in the majority of the world's developed countries.

Improving air quality is one of the priorities of the Sustainable Development Goals (SDGs) published in 2015 by the United Nations to replace the Millennium Goals. Target 3.9 of Goal 3 (Good Health and Well-being) states:

'By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.'

Goal 7 (Affordable and Clean Energy) mentions the need to increase renewables' share of the energy mix and improve energy efficiency, as well as to expand infrastructure and upgrade technology for supplying modern and sustainable energy services in all developing countries.

The clearest reference to air pollution is found in Target 6 of Goal 11: 'By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.'

Improving urban air quality has also been the aim of legislation passed by the European Union. The following are the three most recent and most relevant directives in this regard: Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air; Directive 2008/50/EC on ambient air quality and cleaner air for Europe; and Directive 2016/2284 on the reduction of national emissions of certain atmospheric pollutants.

At national level, the first two directives were transposed into Spanish legislation by Law 34/2007 on air quality and protection of the atmosphere. This law was implemented four years later by Royal Decree 102/2011, which defines and sets the corresponding air quality targets.

To meet the obligations established in both this law and the European directives mentioned above, in April 2013 the Ministry for Ecological Transition (formerly, as regards the environment portfolio, the Ministry of Agriculture and Fisheries, Food and Environment) published the *Plan Nacional de Calidad del Aire y Protección de la Atmósfera 2013-2016* (National Plan for Air Quality and Protection of the Atmosphere 2013–2016), widely known as the AIRE plan. The AIRE II plan (2017–2019), approved in December 2017, has since come into effect. This plan assesses the extent to which its predecessor achieved its objectives, makes a diagnosis of the current situation and sets out the objectives and measures needed to achieve them, as well as monitoring those measures.

Air quality and transport in urban environments

Europe's biggest sources of air pollution are the transport, retail, institutional, household, energy production and distribution, industrial, agricultural and waste management sectors.

The impact of the emissions attributable to each of these activities is determined by the particular pollutant involved and the area in which it is produced. For example, road transport is the main source of nitrogen oxide emissions; fossil-fuel-based energy generation in homes, shops and private and public institutions is the main source of PM2.5 and PM10 emissions; and most sulphur oxide emissions are attributable to electricity generation and distribution (particularly power stations).

Royal Decree 102/2011 of 28 January 2011 on improvement of air quality is intended to prevent and reduce the harmful effects of the above-mentioned substances on human health, the environment and all other areas.

According to the city of Madrid's Air Quality and Climate Change Plan (2017), road traffic produces 51 % of NO_x emissions, 61 % of PM10 emissions, 55 % of PM2.5 emissions and 55 % of CO emissions.

In addition to the above, it is essential to consider the distance between the pollutant emission source and the population potentially affected by it. Currently, over half of the world's population lives in urban areas. In Spain's case, the urban population accounts for close to 80 % of the total. For this reason, it is necessary to focus on cities and the pollution generated in them.

This approach is justified because, in addition to the size of the urban population relative to the total, the main sources of non-urban air pollution (power stations, oil refineries, heavy industry, etc.) are generally located far from rural population centres, thereby greatly reducing their potential impact on them. Moreover, generation of pollutants in rural settlements and their surrounding areas (due to traffic, household heating, burning of agricultural waste, use of agricultural machinery, etc.) is offset by the lower concentration of emission sources, which means that pollution dissipates much more easily in that environment.

In short, as far as air quality is concerned, populations living in large urban areas are in a worse position than those living in sparsely populated ones. In medium-to-large cities, road traffic is a major issue because of its contribution to air pollution. According to the latest European Environment Agency report (Air Quality in Europe – 2017), Europe's air quality is slowly improving thanks both to past and present policies and to advances in technology.

Heating systems powered by fossil fuels are, alongside traffic, another of cities' major sources of pollution. This is one of the reasons why episodes of severe air pollution mainly occur in autumn and winter, when transport and heating emissions tend to be at their highest. These episodes are exacerbated by atmospheric temperature inversion which results in pollution hanging in the lower layers of the atmosphere for longer, which directly affects the population.

Rail transport barely contributes to air pollution *in situ* because of the extent of electrification and diesel engines' efficiency when compared with other means of transport.

Given the significant impact that road traffic has on air pollution in cities, where it is the main source of fine particulate matter, government policy on air quality must particularly emphasise citydwellers' transport habits. In this respect, use of means of transport that are more efficient in terms of both capacity and pollutant emissions must be encouraged. Essentially, this entails favouring public transport over private vehicles and restricting the most highly polluting vehicles' access to city centres. This is the direction in which most of the actions taken or planned by local and regional authorities, both in Spain and elsewhere, are heading.

International examples

Several European cities are already implementing measures to prevent and mitigate air pollution.

Preventive measures are aimed at keeping pollution levels below the thresholds set by Community and national regulations and are oriented towards reducing private vehicle use and/or making greater use of less pollutant vehicles.

Some local authorities charge a fee to access city centres as part of a policy of reducing the amount of traffic entering or passing through them. The best-known example of this is London's congestion charge, which came into force in 2003.

Drivers have to pay a daily fee (currently GBP 11.50) to access the area within the city's outer ring-road, which is where most of London's retail and finance are located. The charge is applicable on working days from 7 a.m. to 6 p.m. Although implementation of this policy was not primarily intended to reduce air pollution, until 2016 the charge operator, Transport for London, offered a discounted rate for vehicles with lower pollutant emissions to encourage their use. Since October 2017, vehicles that do not meet the Euro 4 standard have to pay an extra charge of GBP 10.00 (T-charge) to enter central London, thereby indicating a shift to a more restrictive vehicle-emissions policy.

Another noteworthy example is provided by Milan, which has adopted two distinct approaches. The first was Ecopass, which was in force between 2008 and 2011 and was based on vehicle emission levels. The second, Area-C, which has been in operation since 2012, implements a series of charges irrespective of vehicle type.

Congestion charges are also common in many major Scandinavian cities, among them Stockholm, Gothenburg, Oslo and Bergen.

Low emission zones are areas of city centres in which pollutant vehicles are restricted or banned while low emission (hybrid or alternative energy) or electric vehicles are allowed free access. These zones have already been established in several European capitals, including Berlin (2008), London (2008), Athens (2012), Paris (2015) and Brussels (since 1 January 2018). In Brussels, Paris and London, the low-emission zone covers the entire city, not just the centre.

The restrictions applied by Italian cities like Turin and Cremona, which ban the most-polluting vehicles (Euro 0) in the coldest months of the year, which is when atmospheric temperature inversion occurs, are likewise notable.

Extraordinary mitigation measures are also applied during episodes of high pollution in order to lower pollutant levels and bring them back below the thresholds established. These measures are usually set out in action plans drawn up to deal with episodes of high pollution.

Europe's most advanced city in this respect is Paris. Its first action plan, which adopted a metropolitan focus from the outset, was implemented in 1994. The current plan, in force since 2017, is also metropolitan in scope and applies to the entire Île de France region. It employs most of the measures adopted in other European cities and is implemented in two stages determined by the levels of the pollutants (NO_2, O_3 and PM10) and their persistence. The first stage delivers information and recommendations while the second stage (alert) directly applies traffic restrictions. Measures in the alert stage include speed restrictions on roads and motorways, access restrictions on the highest-polluting vehicles in most of the zone and, in extreme cases, usage restrictions on alternate days depending on vehicle registration number (vehicles with even numbers can only be used on even-numbered days and those with odd numbers can only be used on odd-numbered days). Other measures are also planned, including discounted charges, free use of public transport, promotion of company buses and park-and-ride systems on the boundary of the restricted zone.

Preventive measures in European cities: congestion charges, low-emission zones and restrictions on the most-polluting vehicles.

London

Area C (Milan)

Several medium-sized French cities, among them Lyon and Grenoble, have followed Paris's example and have drawn up their own plans to deal with episodes of high pollution. Various Italian cities, most notably Turin, have also implemented staged measures. Its action protocol spans 4 successive stages that begin with restrictions on Euro 0 petrol vehicles and Euro 4 diesel vehicles throughout most of the day and go as far as banning practically all vehicles (stage 3) and providing free public transport (stage 4).

Other cities, like Warsaw and Skopje, also provide free public transport on occasion to combat episodes of high pollution, though they do not simultaneously restrict road traffic.

Another approach, as seen in recent years in German cities like Munich, Düsseldorf and Stuttgart, which are home to major vehicle manufacturers, is to provide the public with status updates during episodes of high pollution and ask them to refrain voluntarily from using their cars. Nevertheless, since 2018 these cities now place restrictions on diesel vehicles during high pollution episodes as the federal courts ruled that voluntary action and promotion of public transport were not sufficient to combat those episodes.

Mitigation measures in European cities: information and recommendations, speed limits, restrictions on the most-polluting vehicles, free public transport.

Action plans applied in Spain during extraordinary episodes

Implementation of action protocols and plans during high pollution episodes in Spain is a fairly recent development and consequently the level of deployment is low. In 2017, only six metropolitan areas/urban agglomerations had protocols in place to deal with high pollution episodes: Madrid, Barcelona, Valencia, Valladolid, Gijón and Avilés. The plans in force in each of those areas are described below.

Madrid has two protocols in place: one municipal and one regional. Madrid City Council's first action plan to deal with extraordinary pollution episodes dates from 2014 while the currently applicable one was approved in January 2016. The present plan contemplates four scenarios based on three levels of NO_2 pollution: early warning (2 stations recording levels exceeding 180 µg/m^3 for 2 hours), warning (2 stations exceeding 200 µg/m^3 for 2 hours) and alert (3 stations exceeding 400 µg/m^3 for 2 hours). The actions taken under the scenarios are cumulative.

1. Scenario 1 (1 day at early warning level): The public is informed and a speed limit of 70 km/h is applied to the M30 inner ring-road and main roads leading into Madrid.
2. Scenario 2 (2 days at early warning level, or 1 day at warning level): Parking in metered spaces in the area inside the M30 is prohibited.
3. Scenario 3 (2 days at warning level): Vehicle access to the area inside the M30 is restricted based on vehicle registration number (on even-numbered days, only cars and motorcycles with even registration numbers are allowed in, and on odd-numbered days only those with odd numbers are allowed in). Taxi drivers are also recommended not to make empty journeys.

4. Scenario 4 (1 day at alert level, or 3 days at warning level): The number-plate-based restriction on vehicle access is also applied to the M30.

This protocol is expected to be updated in October 2018 as part of a commitment to modify the scenarios and replace, among other measures, the even/odd number-plate criterion with one based on an emissions criterion set by the DGT (Directorate-General for Traffic).

In addition, in 2017 the Regional Government of Madrid drew up an action protocol for episodes of high NO_2 concentration. It emphasises the need for coordination with local authorities and obliges councils of towns and cities with over 75 000 inhabitants to draw up proprietary protocols based on the Regional Government's guidelines. Like Madrid City Council's protocol, it sets three levels and four scenarios (both with the same thresholds). The only difference is that Scenario 4 is only activated by 1 day at alert level. However, this protocol does not apply restrictions on traffic in any of the four scenarios. Rather, it hands responsibility for this to municipal action plans. The main measures are a speed restriction of 90 km/h on the M40 and M45 outer ring-roads and on the major roads inside the M45 (from Scenario 2 onwards) and an increase in public transport capacity (from Scenario 3 onwards), applied at the discretion of Madrid's regional transport consortium.

The parking provisions and restrictions on vehicle use based on the number plate criterion in the protocols in place in Madrid and Valencia are not applied to vehicles with the Zero Emissions label. In Valencia, vehicles bearing the Eco label are also exempt.

Scenario 1 in Madrid. (Photo: Jorge París)

In the case of Barcelona, pollution control and air quality measures have a more metropolitan focus. The first plan adopted by the Regional Government of Catalonia to improve air quality dates from 2007 while the one currently in effect was approved in 2014 and will run until 2020. In parallel, Barcelona City Council approved an air quality plan for 2015–2018 and several other councils within the Barcelona metropolitan area have done likewise. As regards action protocols to deal with high pollution episodes, in 2016 the Regional Government approved two distinct protocols: one for episodes of high particulate-matter concentration and the other for high NO_2 concentration. In addition, in January 2017 it introduced a specific protocol for the Barcelona metropolitan area[1] which seeks to coordinate the actions of the various town and city councils and Regional Government. To this end, it creates the role of Municipal Pollution Episode Officer. The number of stages and the measures envisaged depend on the type of pollutant (NO_2 or PM10) that activates the protocol.

The protocol activated by excessive NO_2 levels has four stages:

1. Active monitoring (>140 µg/m^3 for 1 hour): activated by Barcelona City Council. The public is informed and coordination between the various stakeholders begins.

2. Preventive warning (>160 µg/m^3 for 1 hour): activated by the Regional Government. Measures such as variable speed limits on major roads are implemented and traffic-light management is set to favour public transport.

3. Episode (>200 µg/m^3 for 1 hour): activated by the Regional Government. Based on the protocol for the Barcelona metropolitan area, three transport

In Barcelona, the measures' focus is metropolitan and requires full coordination between the various local authorities.

Road signs in Barcelona.

measures are implemented: (i) vehicles without DGT labelling are prohibited from the areas within the Barcelona ring-road (low emission zone), (ii) travel on public transport is discounted via the T-Episodi card at the discretion of the Barcelona metropolitan transport authority, and (iii) temporary lanes for buses and high-occupancy vehicles are set up on the main roads leading into the city. Barcelona City Council's proprietary action plan[2] also includes restrictions on metered parking.

4. Alert (>400 µg/m^3 for 3 hours): activated by the Regional Government, it allows councils and the Barcelona metropolitan-area authority to increase restrictions on private vehicles.

For its part, the PM10 pollution protocol has two stages: preventive warning (>50 µg/m^3 for 1 day) and episode (>80 µg/m^3 for 1 day or 3 consecutive days at >50 µg/m^3). The actions carried out in this case focus on halting construction work and on damping dusty/powdery surfaces, as well as on restricting speed on major roads. When the episode level is reached, traffic is only restricted if the source of the particles is anthropogenic.

Mitigation measures in European cities: information and recommendations, speed limits, restrictions on the most-polluting vehicles, free public transport.

One of Spain's other major cities, Valencia, also has a municipal action protocol in place to deal with episodes of NO_2 or PM10 pollution. This has been in effect since 2010. The protocol is similar to the one followed by Madrid City Council and adopts the same thresholds for the three NO_2 levels (early warning, warning and alert). It also sets two levels for particulate matter: early warning (2 stations exceeding a daily mean of 50 µg/m^3) and warning (2 stations exceeding a daily mean of 80 µg/m^3). Based on pollution level, the protocol recognises two types of episode. The measures adopted are cumulative.

1. Type-1 Episode (1 day at warning level for NO_2, or 2 days at early warning level for PM10): parking in spaces regulated by the city's parking ordinance is prohibited.

2. Type-2 Episode (1 day at alert level or 2 consecutive days at warning level for NO_2 or 1 day at warning level for PM10): traffic is restricted based on the number-plate criterion (odd- and even-numbered).

The city of Valencia has an action protocol in place to deal with high levels of NO_2 or PM10 based on two high-pollution episodes and featuring cumulative measures that prohibit parking and restrict vehicle use by registration number.

Outside these major conurbations, the city councils of Valladolid, Avilés and Gijón have also approved protocols. Valladolid's plan, approved on 1 February 2017, divides the city into two zones: historic centre and main access roads. It defines three action levels (prevention, warning and alert) that activate specific measures for the council to implement (information, promotion of public transport and traffic restrictions). This protocol differs from the others in that it is the only one that takes more than two pollutants into consideration when setting the thresholds, regulating NO_2, PM10, PM2.5, O_3, SO_2 and CO. At preventive level, public transport provision is increased and bicycles are relocated to the most

[1] *Protocol d'actuació en cas d'episodis d'alta contaminació per NO_2 i PM10 a l'Àrea Metropolitana de Barcelona (in Catalan). Regional Government of Catalonia. January 2017.*

[2] *Programme of measures to combat air pollution. Barcelona City Council. November 2016.*

affected zones. At warning level, in addition to improved public transport, traffic management in the historic centre is modified and, at the council's discretion, a 30 km/h speed limit can be set, parking fees can be raised and polluting vehicles can be denied access. The alert level adds to the measures introduced at warning level, restricting the speed on the city's main access roads and lowering the price of public transport.

Finally, the two cities in Asturias —Avilés and Gijón— stand out for adopting action protocols that focus exclusively on PM10 levels. This is because the environmental issues there mainly relate to particulate matter emissions from local ports and industry. Both protocols were approved by Asturias' regional government and have a supra-municipal scope: in addition to the main city, both extend to the nearby port authority and several other towns (Castrillón and Gozón in the case of Avilés and Carreño in that of Gijón).

These two protocols have three levels: warning, pre-alert and alert. Unlike the other protocols in place in Spain, in these two warning level is activated if long-running meteorological phenomena that hinder dispersion of particulate matter are detected, irrespective of PM10 concentration. The aim of this is solely to warn stakeholders. Pre-alert level (>50 µg/m^3 daily mean, for 3 consecutive days) places restrictions on industrial and port operations, as well as on heavy-goods vehicles during the morning rush-hour on the roads most affected by pollution. Loading and unloading is also restricted and is prohibited before 9 a.m. For its part, alert level (>75 µg/m^3 daily mean, for 5 consecutive days) places even greater restrictions on industry and the port authority and limits loading, unloading, transfer and transport of material to the absolute minimum necessary to keep the port operational. As regards road traffic, heavy-goods vehicles are also banned from the roads in the evening rush-hour and use of private vehicles (except those providing public services) may also be restricted.

Valencia (Photo: Levante-EMV).

In Valladolid, novel measures are in place such as relocating bicycles to the zones most affected by pollution or raising parking fees.

Loading clinker in Avilés, Gijón (Photo: RG. El Comercio).

Analysis by: Transyt. Transport Research Centre (UPM) and European Environment Agency National Focal Point. Directorate-General for Biodiversity and Environmental Quality. Ministry for Ecological Transition.

1.2 CLIMATE CHANGE AND RIVER **SYSTEMS**

5th IPCC Report (2014)
CLIMATE CHANGE 2014
Synthesis Report

Adaptive water resource management techniques, including scenario planning, learning-based approaches and flexible low-risk solutions can help create resilience to the as-yet unknown hydrological impacts and changes caused by climate change (limited evidence, high level of agreement). IPCC, 2014.

Foreseeable effects of climate change on water resources and river ecosystems: global picture

The most recent Assessment Report by the Intergovernmental Panel on Climate Change (IPCC, 2014) predicted that by 2100 the average world temperature would be between 1.8 °C and 4.0 °C above the 1980–2000 average (best estimate between the probable range of 1.1 °C and 6.4 °C).

This would mean that fresh water would be severely affected, both in terms of availability and raw quality. A large proportion of terrestrial and freshwater species face a growing risk of extinction in the projected climate-change scenario, particularly as a result of interaction between climate change and other stress factors such as overexploitation, pollution and invasive alien species.

Climate change has a cascade effect on river ecosystems that begins with an impact on the water balance. This in turn affects various river processes (water cycle, channel stability, riverbed substrate structure, etc.) and water quality, impacting in this latter case all of its descriptors, especially temperature. This is particularly concerning because temperature regulates the concentration of dissolved oxygen in water, which decreases as the temperature rises. Taken together, the alterations that climate change induces in river processes and water quality condition the continuance of the biological communities that live in fresh water and modify their structure and dynamics.

Spain's geographic position and socioeconomic characteristics make it highly vulnerable to climate change and the country is already feeling the effects. The impacts of the associated processes can have especially grave consequences, such as decreases in water resources, loss of biodiversity and natural ecosystems and increases in soil erosion and extreme weather events such as floods, forest fires and heatwaves.

Various climate-change models indicate an increase in temperature but also reveal several as-yet unknown factors as regards precipitation, drought and flooding. In this context, each river basin's capacity to adapt to the adverse effects of climate change will define its vulnerability to those impacts.

Spain's PIMA Adapta plan (Plan for the Promotion of the Environment: Climate Change Adaptation) was launched in March 2015 by the Ministry of Agriculture and Fisheries, Food and the Environment (now, as regards the environment portfolio, the Ministry for Ecological Transition) with the aim of implementing specific, pioneering and long-term climate-change adaptation projects.

The PIMA Adapta plan falls within the framework of the **PNACC (National Climate-Change Adaptation Plan)** and includes actions on coasts, public water resources and national parks.

Implementation of the PIMA Adapta plan as regards management of water and public water resources is known as **PIMA Adapta-AGUA**. Its objective is to improve understanding and monitoring of the impacts of global and climate change on this field while minimising the risks associated with it and increasing the system's resilience to it.

Projects and actions under the PIMA Adapta-AGUA plan follow four strategic pathways that cover all the adaptation categories proposed by the IPCC in its Fifth Assessment Report (IPCC: AR5):

1. Management and adaptation measures for fluvial nature reserves (FNRs).
2. Adaptation to extreme phenomena.
3. Assessment of the impact of climate change on water resources and development of adaptation strategies.
4. Development of climate-change adaptation projects for public water resources.

Assessment of the impact of climate change on water resources and drought in Spain (2017).

The PIMA Adapta-Agua plan is an initiative to improve the understanding and monitoring of the impacts of global and climate change on water and public water resource management.

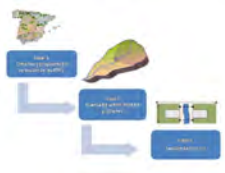
http://www.mapama.gob.es/es/agua/planes-y-estrategias/plan-pima-adapta-agua.aspx

Royal Decree 638/2016 of 9 December 2016 amending the regulation on public water resources.

Detailed information on fluvial nature reserves

https://www.youtube.com/watch?v=rvQdp8__dnM

Strategic pathways for management of fluvial nature reserves



Spatial monitoring levels.

Fluvial Nature Reserves and adaptive management

Fluvial nature reserves are representative continuous or discontinuous natural watercourses, or sections of them, in which the pressures and impacts produced by human activity have not altered the natural state that gave rise to their status as nature reserves.

FNRs offer a valuable framework to develop adaptive management methodologies. They provide the opportunity to monitor the effects of climate change on the associated ecosystems and water resources, detect any changes occurring and so anticipate and mitigate the potentially adverse effects.

What makes FNRs ideal for testing and monitoring?

Aquatic environments are especially vulnerable to changes in climate as they are directly influenced by temperature and precipitation and the seasonal distribution of them. They are also vulnerable because they include sections of river barely affected by other anthropic pressures, which makes it possible to study the effects of climate change without the interference of other factors. Furthermore, these reserves have significant potential to raise public awareness about climate change.

Monitoring the effects of climate change on fluvial nature reserves

Work is currently under way to **establish an FNR monitoring network to obtain long-run data with which to assess and evaluate the possible effects of climate change on river ecosystems and the development of them.** Its aims are as follows:

- **Improve understanding** of the effects that climate change may be having on river systems.
- **Understand the degree or magnitude of the impact** those changes have on river ecosystems' various components and study those changes over time.
- **Examine the relationship between the possible changes detected** by the monitoring network and the effects of climate change.
- **Use this greater understanding of river ecosystems** to adapt river restoration and conservation measures to both the changes detected and the foreseeable climate scenarios with the aim of minimising their adverse effects.
- **Promote information exchange, dissemination and governance** in the public domain, especially in relation to the organisations and professionals that work in this field (cooperation with other monitoring networks).
- **Propose specific measures for areas identified as climate refuges**, headwaters and other river spaces whose microclimate and characteristics could play an important role in the survival of certain species or ecosystems.
- **Improve management of reserves as ecological corridors** based on the role they play in the movement of animal and plant species particularly vulnerable to climate change.

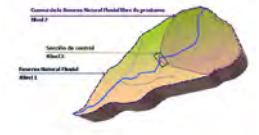
Monitoring of climate change in FNRs is proposed from a long-term perspective. The key idea is to ensure sustained monitoring over time that makes it possible to observe patterns and trends in rivers' characteristics and their relationship to climate change.

Fluvial nature reserves proposed for inclusion in the climate-change monitoring network.

The FNR basins monitored are watersheds free of pressures and impacts. Aspects such as alterations in meteorological variables, land use and changes in the active river course will be studied.

The spatial framework for analysis focuses on three levels that will determine the types of variable to measure and the intensity of the monitoring. In spatial terms, the first level is the FNR, studied as a geographic unit and considering its entire course and watershed. To this end, a series of FNRs whose characteristics make them ideal for monitoring have been selected from the National Catalogue. The next study and monitoring level is a selected section of the FNR basin that is free of significant anthropic impacts and pressures. The third and final level is the control section, which is located within the impact- and pressure-free FNR basin section.

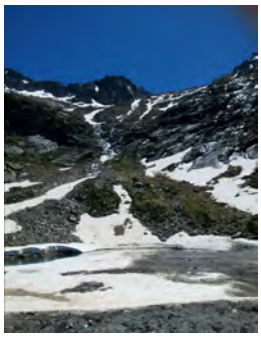
To study the effects of climate change on river systems, a series of observation data and monitoring variables are proposed for each of the fluvial medium's main components (meteorology, hydrology, geomorphology, riverside vegetation, physical/chemical/biological status of the water, anthropic disturbance and natural events), adopting the principles of sensitivity to change, future replicability and technical and financial feasibility.



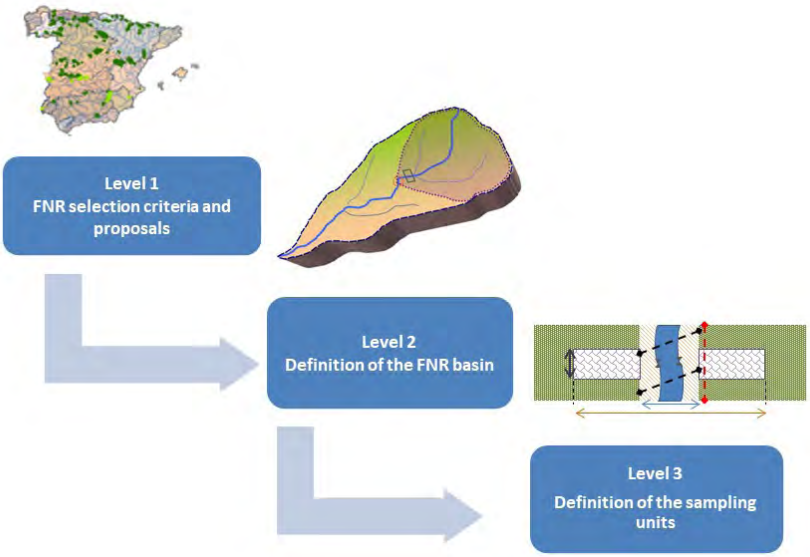
Spatial monitoring levels. Selection of the impact- and pressure-free FNR basin

AdapteCCa.es
Plataforma de intercambio y consulta de información sobre adaptación al Cambio Climático en España

ADAPTECCA – Climate-change adaptation information exchange platform



River Noguera-Ribagorzana (nival flow regime in which the variation in seasonal inputs under climate change scenarios will be highly pronounced).



This set of variables will be supported by a historical analysis to establish the reference values and the control period for these reserves. It is also considered important to establish a future information processing and management system that provides coordinated access, control and dissemination of the information in line with good governance.

Monitoring climate change in the River Manzanares fluvial nature reserve (ES020RNF061)

The proposed protocol for monitoring climate change in fluvial nature reserves has been applied on an experimental basis in the headwaters of the River Manzanares.

To study the applicability of the protocol for monitoring climate change in fluvial nature reserves, the River Manzanares (ES030RNF061) fluvial nature reserve has been selected and the following have been carried out:

- Analysis of future climate-change projections.
- Analysis of historical data for the River Manzanares FNR and of related studies.
- Definition of the spatial framework for monitoring climate change in the FNR.
- Analysis of the suitability of the variables for monitoring the effects of

Fluvial nature reserves proposed for inclusion in the climate-change monitoring network.

climate change based on their sensitivity and accuracy.

- Testing of some of the methodologies proposed in the protocol, evaluating performance, practical difficulties and feasibility.
- Proposal of instrumentation and location.
- Findings derived from the preliminary monitoring data.

Climate change and river restoration projects

River restoration aims to increase habitat diversity by creating favourable conditions for native species, increasing species richness and facilitating habitat connectivity. However, the actions designed may fail to meet their long-term objectives if climate change is not taken into consideration from the start.

Climate-change projections suggest there will be alterations to precipitation and temperature patterns, as well as in the frequency and intensity of extreme weather events like drought and flooding. This is why understanding climate change's effects on rivers can support design of river restoration and conservation actions that improve the status of the system, adapting not only to the current climate conditions but also to the expected variations in line with the provisions of European and national regulations.

For this reason, and in parallel to the monitoring of fluvial nature reserves, work is under way on a best-practice protocol with the aim of analysing interaction between restoration projects and climate change. This is intended to achieve the following:

- Assess the possible impact of climate change on the system intended to be restored.
- Assess the vulnerability of rivers and their associated ecosystems to the effects of climate change with the aim of focusing restoration on reducing that vulnerability.
- Provide recommendations for the design of the restoration work with the aim of encouraging adaptation of it to various climate-change scenarios.
- Integrate climate change into monitoring of river restoration projects.

Climate change adaptation in river restoration projects will make it possible to reduce the systems' vulnerability and increase their long-term resilience. It is necessary to start integrating the various aspects of climate change into river restoration.

Adaptation vs resilience

- Climate change adaptation is any process of adjustment in a system in response to current or future climate stimuli. Adaptation must therefore aim to reduce the system's vulnerability to the adverse effects of climate change.
- Resilience is the capacity of social, economic or environmental systems to withstand a hazardous disturbance, phenomenon or trend by responding or reorganising in such a way that they maintain their essential function, identity and structure and, at the same time, retain their capacity to adapt, learn and transform.

Example of improvement of watercourse morphology. Sediment trap.

Example of improvement of biodiversity. Improvement of fauna habitats.

Fish ladder in the Hijar and Ebro riverside park. Photograph taken from the Grupo Tragsa image bank.

Assessment of the impacts that climate change may have on the fluvial environment has been conducted by analysing the vulnerability of the system. To this end, the possible effects that climate change may have on the section of the River Manzanares included in the restoration project have been identified, ignoring those that can be attributed to anthropic variations. The extent to which this effect may occur in the future has also been indicated.

Improvement work on the fluvial system. Photograph taken from the Grupo Tragsa image bank.

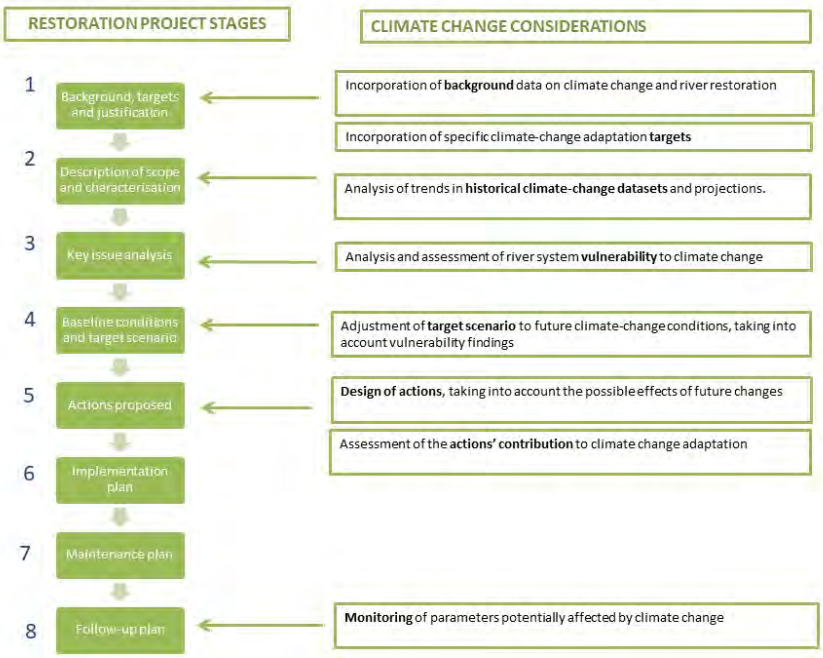
The methodology proposed incorporates various considerations relating to climate change in the various stages of the river restoration projects.[1] These projects consist of 8 essential steps[2] that range from setting out the background and objectives through to the monitoring plan and definition and implementation of the restoration actions. To incorporate the considerations specific to climate change, development of specific climate-change adaptation objectives, analysis of the river system's vulnerability, proposal of various recommendations regarding the design and/or implementation of the river restoration measures and assessment of the contribution to adaptation are proposed.

To evaluate the project's contribution to climate change adaptation, the extent to which the measures contemplated in the project help to reduce the previously assessed river system's vulnerability will be assessed.

Improvement work on the fluvial system. Photograph taken from the Grupo Tragsa image bank.

[1] *Based on Perry et al., 2015.*

[2] *Tánago, M. G. del, & Jalón, D. G. de. (2007). River restoration. Methodological guide for project preparation. (Ministry of the Environment, Ed.) (p. 318).*



River Manzanares restoration project in the grounds of the El Pardo royal palace

Various river restoration actions are under way on the River Manzanares where it passes through the grounds of the El Pardo royal palace. These are intended to help meet the environmental objectives of the River Tagus basin management plan (in accordance with the Water Framework Directive), as well as to improve its compatibility and ecological status in line with the Habitat Directive (Natura 2000 network).

The aim in restoring this space is to create an environmental corridor that, via the Manzanares riverside park, connects spaces of interest such as Madrid's south-east regional park, the River Manzanares upper basin and even the Sierra de Guadarrama national park. Within this improvement process, climate change is being integrated as a cross-cutting variable applicable to all design, implementation and monitoring processes.

Restoration of the River Manzanares in the grounds of the El Pardo royal palace (Madrid).

Implementation of the River Manzanares restoration project in El Pardo.

Contributes to reducing vulnerability?											Is it effective in the long term?					
River basin	Liquid flows	Solid flows	Physico-chemical quality	Groundwater	Continuity	Morphology	Riverside	Fauna	Ecosystem services	VULNERABILITY REDUCTION	Flexibility (posterior adjustments)	Robustness (various scenarios)	Indirect negative effects	EFFECTIVENESS	CONTRIBUTION PER ACTION
0,00	1,82	3,74	3,05	1,09	1,37	2,55	7,30	4,96	2,58	2,85	4,21	7,55	6,05	5,94	3,77352

Table assessing the contribution of the River Manzanares restoration project in the El Pardo royal palace grounds to the river system's capacity to adapt to climate change.

Climate change in flood risk management

In 2007, the European Commission approved Directive 2007/60/EC on assessment and management of flood risks, which was transposed into Spanish law by Royal Decree 903/2010 on assessment and management of flood risks. The Floods Directive lays down six-year cycles for flood risk management.

In accordance with the Floods Directive, areas at significant potential risk of flooding were identified by each water authority during the preliminary risk assessment and within the deadlines set. These data were then used to draw up flood hazard and flood risk maps to provide the basis for the corresponding flood risk management plans (FRMPs).

Implementation of this Directive provides an opportunity to improve coordination between administrative bodies vis-à-vis reducing these adverse effects, focusing fundamentally on the zones at greatest risk of flooding (known as areas at significant potential risk of flooding).

Flood hazard and flood risk maps have been drawn up for these zones at greatest risk of flooding and are the objective of the main measures of the flood risk management plans.

The actions laid down in the 2016 PIMA Adapta-Agua plan include implementation of those FRMPs in coordination with climate change adaptation. They also set out the methodologies, tools and analyses necessary. Consequently, in 2017 trials were carried out and methodologies were designed to analyse and include the influence of climate change in review of the preliminary flood-risk assessment and of the FRMPs that will be carried out by the end of 2018 and 2021, respectively.

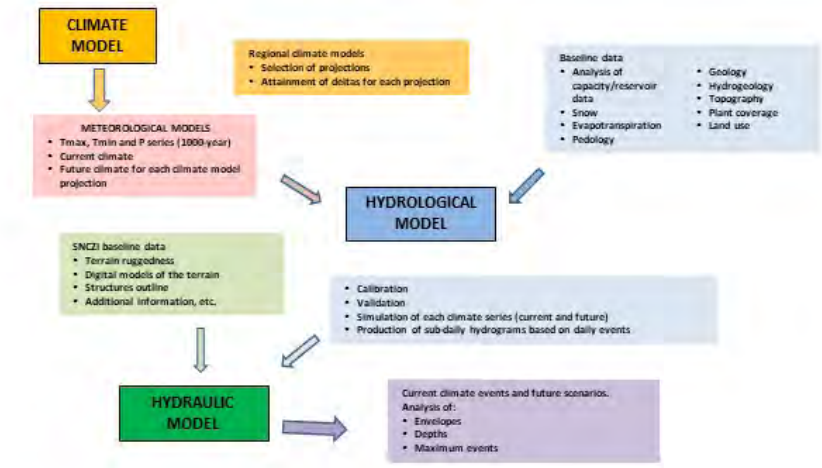


Figure: Chart showing the methodology followed.

As an initial attempt to identify the most appropriate way of incorporating climate change into flood risk studies, a methodology has been developed that combines the various climate projections set out in the most recent European projects and studies and incorporates their climate variables into a hydrological model used to obtain spate hydrograms and finally, performs hydraulic simulation to obtain the flood zones associated with the various future climate hypotheses.

To assess climate change's influence on temperature and precipitation, the baseline data considered in the methodology applied were as follows:

Return period	100 years
Greenhouse gas emissions scenario	RCP 8.5
Time span (current climate)	1971–2010
Time span (future climate)	2041–2070
No of RCMs selected	2
Source of the observed baseline data	Spain02
Hydrological simulation model	TETIS
Hydraulic simulation model	IBER

Table 1. Baseline methodological considerations.

To assess this pilot methodology's applicability and validity it has been applied to 5 risk zones (i.e. areas at significant potential risk of flooding) representative of the variability present in Spain.

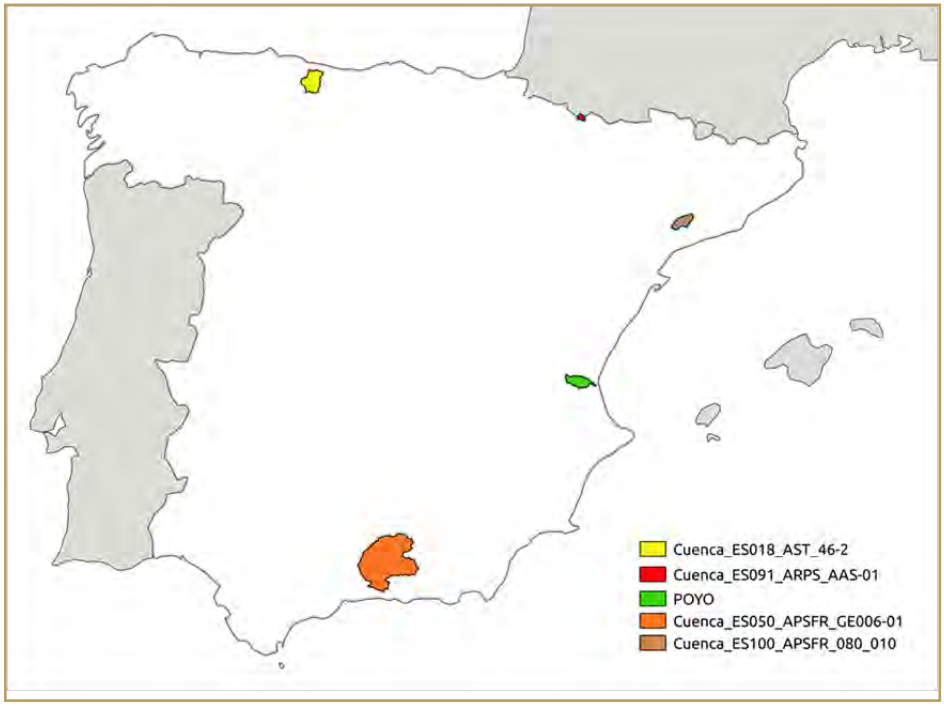


Figure: Location of the areas at significant potential risk of flooding in the pilot study.

Analysis by: Javier Sánchez Martínez, Mónica Aparicio Martín and Francisco Javier Monte Morgado. Subdirectorate-General for Integrated Public Water Resource Management. Directorate-General for Water. Ministry for Ecological Transition.

Ibon de Plan. Photograph taken from the Grupo Tragsa image bank.

Glacier on the north face of Monte Perdido. Photograph taken from the Grupo Tragsa image bank.


COTO DE
PESCA

Indicators:
AREAS AND SECTORS

2.1 ECONOMY AND SOCIETY

In 2017, Spain's population stood at 46.6 million, positioning it 29th among the world's 195 most-populated countries and fifth within the EU-28, accounting for 9.1 % of the Community's total population. One of the causes of the population increase of recent years is immigration, driven by the strong economic expansion before the financial crisis that created huge demand for labour in the construction, agriculture and service industries. Spain's size (it is the second-biggest country in the EU-28 after France), geographic position (very close to Africa across the Strait of Gibraltar, making it one of the gateways to Europe), long coastline and ease of access by sea and the language it shares with most of South America are all additional factors. According to the UN, immigrants make up 12.6 % of Spain's population, placing it 43rd in the world ranking of countries by percentage of immigration. One of the EU's as-yet unresolved issues is how best to manage the numerous immigrants and refugees that arrive in Member States, a task that must remain on the political agenda if it is to be addressed successfully.

In 2017, just over half of Spain's inhabitants (51 %) were female. Meanwhile, 75 % of the population was over 25 years old and 19 % was over 65, indicating that Spain is an ageing country, a trend that is not expected to change in coming years. The rate of natural change was negative, with 31 245 more deaths than births. At 8.8 %, the birthrate can be considered very low. Life expectancy stood at 83 years. In 2017, Spain recorded positive net migration of 164 604 people. Year on year, immigration increased by 28.4 % and emigration by 12.4 %.

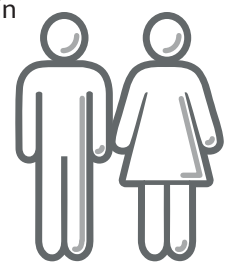
In recent years, the Spanish economy has shown clear signs of recovery marked by rising GDP. This favourable economic outlook is not yet consolidated and is not immune to either the risks inherent to Spain or those originating from elsewhere, both within the EU and from other economic powers and their market policies.

It is important to recall that developing economies are driving the global trade in goods that, with a 4.7 % increase in 2017, represented the largest rise since 2011. China, the United States and Germany were key contributors to this economic development. There is, therefore, a degree of dependence on foreign inputs that are highly conditioned by political situations in which the outcomes are not always foreseeable (Brexit negotiations, Korea's foreign policy, situation in the Middle East, other countries' trade and environmental policies, etc.).

In 2017, the EU's economic recovery consolidated with growth 2.4 % above that of previous years. Among its priorities, the EU is committed to implementing structural policies designed to maintain medium- and long-term growth. Examples of initiatives in which Spain is involved include advances in industrial policy (via the renewed EU Industrial Policy Strategy) and governance of the energy transition process, diversifying development of transitioning mining regions and recycling professional skills in those sectors. Environmental issues form part of this development context in which the green and circular economy constitutes a priority line of action. Aspects such as climate change are at the heart of many of the economic development initiatives that aim to put the financial sector at the climate's service via a clean and modern economy.

Population

- In 2017, Spain's population stood at 46.6 million, approximately 15 000 inhabitants more than the year before. This represents year-on-year growth of 0.03 %.
- The autonomous communities/cities that experienced greatest year-on-year population growth in 2017 were the Balearic Islands, Madrid and the autonomous city of Ceuta.

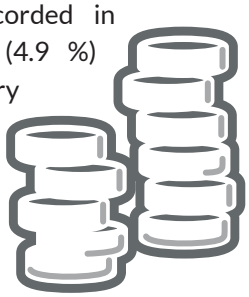


Risk of poverty or social exclusion

- In 2017, 26.6 % of Spain's population was at risk of poverty or social exclusion. This figure was slightly lower than in 2016 (27.9 %) and 2015 (28.6 %).
- In 2016, Spain ranked sixth (after Bulgaria, Romania, Greece, Italy and Lithuania) within the European Union by at-risk-of-poverty rate.

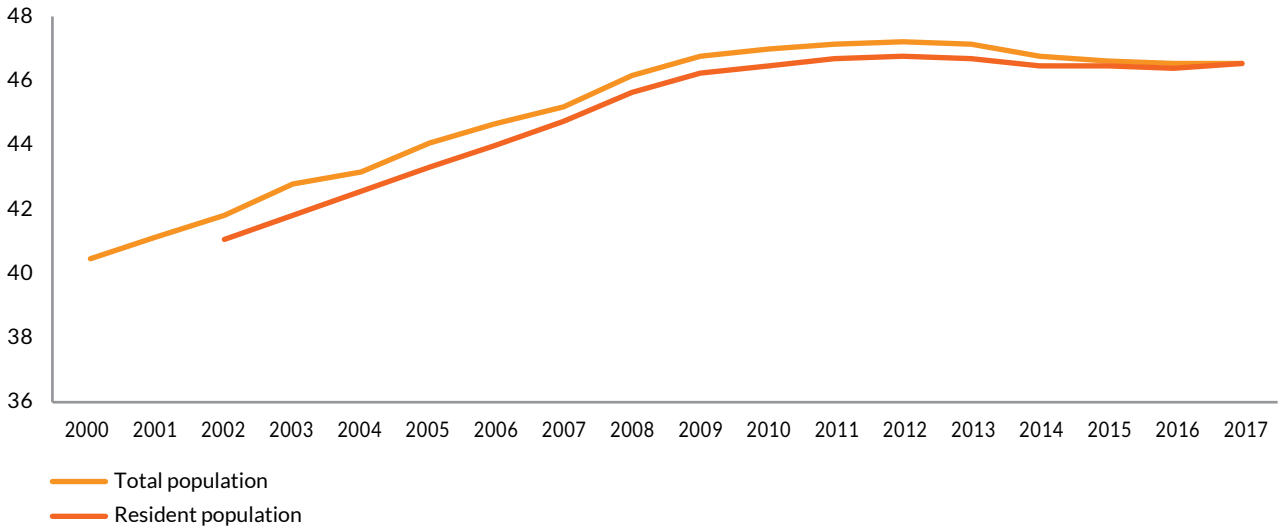
Economic development

- 2017 was the third consecutive year in which GDP grew by more than 3 %.
- In 2017, Spain ranked 15th in the EU-28, with GDP at market prices per capita below the average. Spain's GDP accounted for 7.5 % of the European total, placing it fifth behind Germany, the United Kingdom, France and Italy.
- In 2017, Spain's GDP grew by 4 % year-on-year. By autonomous community, highest growth was recorded in Asturias (5 %), Aragon (4.9 %) and the Basque Country (4.3 %). The autonomous cities of Ceuta and Melilla registered lowest growth at 2 % and 2.2 %, respectively.



Population

Changes in total and resident populations (millions of people)



Source: INE

- ***In 2017, Spain's population stood at 46.6 million, approximately 15 000 inhabitants more than the year before. This represents year-on-year growth of 0.03 %***
- ***The autonomous communities/cities that experienced greatest year-on-year population growth in 2017 were the Balearic Islands, Madrid and the autonomous city of Ceuta***

The data available in the municipal population register show that between 2000 and 2009 Spain's population grew considerably (and practically linearly) from 40.5 million to 46.7 million people. After that, population growth slowed until 2012, when it peaked at 47.2 million people, before falling slightly until 2016, when the population stood at 46 557 008 people. After four years of decline, in 2017 the population increased slightly again, rising to 46 572 132 inhabitants according to the revised population figures taken from the municipal population register at 01/01/17 (BOE No 316 of Friday, 29 December 2017). As regards the resident population, the trend was very similar to that of the total population and stood at 46 659 302 inhabitants at 1 January 2018. In relative terms, Spain's population increased by 0.28% in 2017, so continuing the upturn that began in 2016.

Net population is particularly impacted by migration. There has been a decrease in the number of immigrants arriving in Spain since 2008, a downturn that coincides with an increase in the outflow of emigrants, likely influenced by the financial crisis. In the first case, this is explained by the decrease in the number of jobs available, particularly in the construction and service sectors, meaning fewer job-seeking foreign nationals arrived in Spain. The outflow was driven by departure of foreign nationals who had come to work in Spain and by emigration of Spaniards who, because of the precarious conditions in the labour market, decided to seek opportunities abroad.

Since 2010, net migration has been negative (more people left than arrived), and 2013 saw the lowest number of immigrants arriving and the highest number of emigrants leaving, leading to the largest negative balance (-251 531 people) in the period under review. These trends have since been reversed and net migration in 2015 was practically zero (-1 761 people).

As at 1 January 2017, the most densely populated autonomous communities —with over 10 million inhabitants— were Andalusia, Catalonia, Madrid and Valencia. In comparison with the previous year, the communities/cities that showed greatest growth were the Balearic Islands, Madrid and the autonomous city of Ceuta. In contrast, Castile and Leon, Extremadura, Asturias and Castile-La Mancha all registered population losses of more than 0.5 %.

Definition of the indicator:

The indicator shows Spain's official population figures, as taken from the revised municipal population register at 1 January each year. A difference is made between the total and resident populations.

Source:

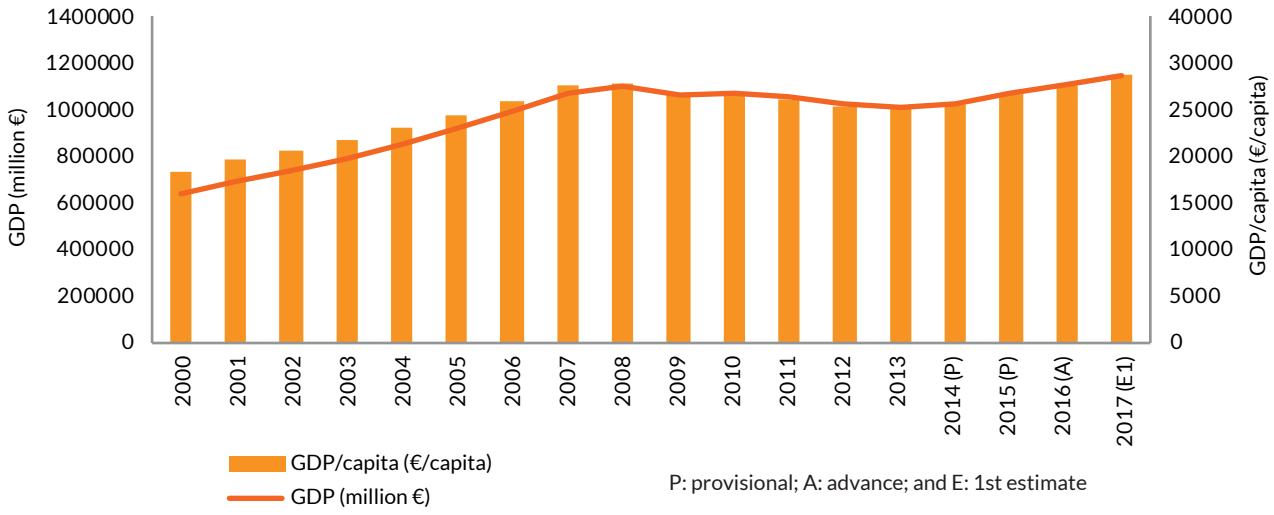
- The INE defines the resident population as the group of people resident in a given political and administrative division (a concept equivalent to what was formerly known as the registered population).
- The municipal population register is the administrative register in which the residents of a municipality are recorded. The data it contains constitute proof of residence in the municipality and habitual residence there. It is compulsory for everyone living in Spain to register with the municipality in which they habitually reside. Those who spend extended periods of time in several different municipalities should only register in the one in which they reside for longest each year. The population figures taken from the revised municipal population register at 1 January are declared official by Royal Decree. They represent the total population.

Recommended websites:

- INE. Official population figures, as taken from the revised municipal population register at 1 January each year (various years). See website for details.
- http://www.ine.es/dynt3/inebase/index.htm?type=pcaxis&path=/t20/p277/prov/e01/&file=pcaxis
- http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tps00001&plugin=1
- https://www.boe.es/boe/dias/2017/12/29/pdfs/BOE-A-2017-15820.pdf

Economic development

GDP at market prices. Total GDP and GDP per capita



P: provisional; A: advance; and E: 1st estimate

Source: INE

- ***2017 was the third consecutive year in which GDP grew by more than 3 %***
- ***In 2017, Spain ranked 15th in the EU-28, with GDP at market prices per capita below the average. Spain's GDP accounted for 7.5 % of the European total, placing it fifth behind Germany, the United Kingdom, France and Italy***
- ***In 2017, Spain's GDP grew by 4 % year-on-year. By autonomous community, highest growth was recorded in Asturias (5 %), Aragon (4.9 %) and the Basque Country (4.3 %). The autonomous cities of Ceuta and Melilla registered lowest growth at 2 % and 2.2 %, respectively***

In 2013, GDP at market prices in Spain reached a turning point, with 2014 being the first year to show an upward trend after the global economic and financial crisis. The 1.2 % increase in GDP reported in 2014 rose to 4.1 % in 2015, to 3.6 % in 2016 and to 4 % in 2017. There was therefore a period of three consecutive years of GDP growth above 3 %, higher than the EU average.

While these figures are positive, they are still below the growth produced in the years before the financial crisis. For example, in 2000 and 2007 growth reached 7 % and 8 %, respectively. Economic intensity per capita performed similarly, registering growth of 4.1 % in 2017.

In recent years, the service sector's contribution to total Gross Value Added (GVA) has stood at around 73.3 %. This huge proportion of total GVA, coupled with its growth in the last few years (8 % between 2013 and 2016 and 3.2 % last year) make this sector the Spanish economy's engine house. Within the sector, the professions, science and technology, and administrative and auxiliary services recorded growth of 6.4 %. They were followed by finance and insurance, which expanded by 5.5 %.

Despite only making a minor contribution to GDP at market prices (2.6 %), agriculture remains significant within the overall scenario of economic improvement, as does industry. Between 2013 and 2017, these sectors' GVA grew by 17.2 % and 16.4 %, respectively.

From 2009 onwards, and mainly due to the financial crisis, the number of people in work decreased, particularly in the construction sector. The 2016–2017 year-on-year change stood at 2.6 %, slightly above the previous year's figure. In this respect, all of Spain's sectors performed positively except services, which reported a 10.9 % decrease.

In 2017, the unemployment rate in Spain was 17.2 %, slightly below the 2016 level (19.6 %). The autonomous communities with the highest unemployment rates were Extremadura (26.22 %), Andalusia (25.51 %) and the Canary Islands (23.46 %) along with the autonomous cities of Ceuta and Melilla (22.45 % and 27.50 %, respectively). At the other end of the scale, the communities with the lowest unemployment rates were Navarre (10.24 %), the Basque Country (11.31 %) and Aragon (11.65 %).

Definition of the indicator:

The indicator shows GDP at both market prices and current prices in absolute figures and per capita. It also provides information about year-on-year changes in terms of volume, and about GVA by economic sector.

Methodological notes:

The data for 2014 and 2015 are still rated as provisional (P) by the INE. The 2016 data are rated as an advance estimate (A) and those for 2017 are rated as an initial estimate (IE).

- The CNE ([Spanish National Accounts) are prepared according to the methodology laid down for the European System of National and Regional Accounts (ESA 2010), which is mandatorily applied as standard by all Member States of the European Union in compliance with the provisions of Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013.
- GDP per capita estimates are made using the ratio between GDP at market prices and the official population figures taken from the revised municipal population register at 1 January each year, as prepared by the INE. Royal Decree 636/2016 of 2 December 2016 declared the population figures taken from the revised municipal population register at 1 January 2016 as official.

Source:

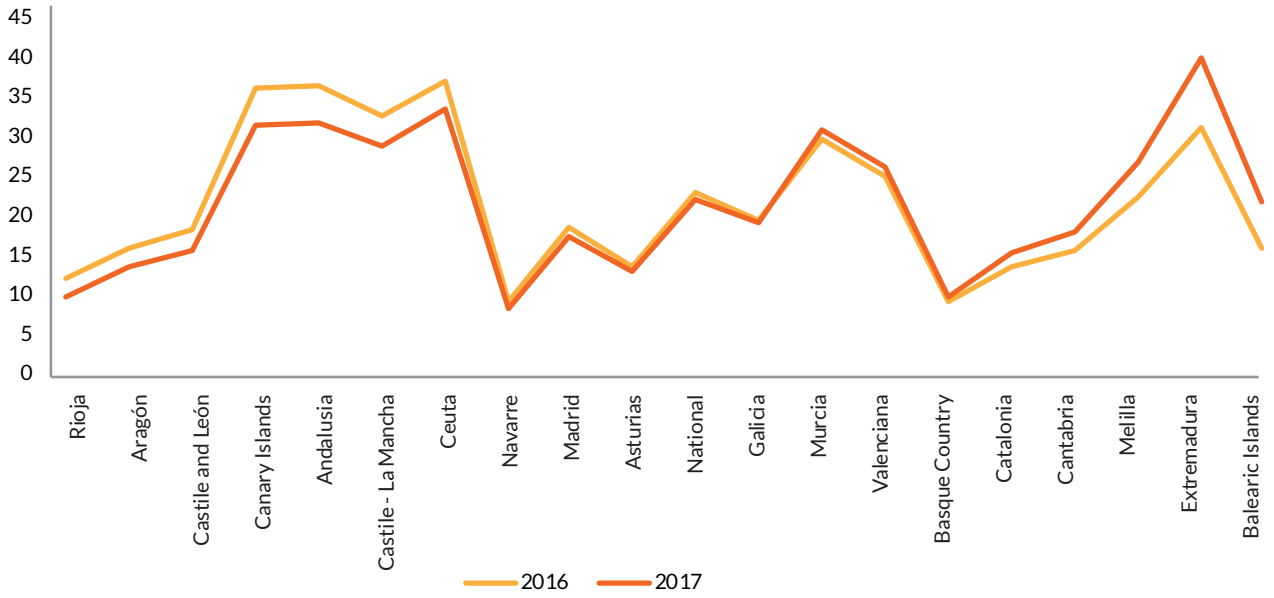
- GDP figures:
  - http://www.ine.es/dynt3/inebase/index.htm?type=pcaxis&path=/t35/p010/base2010/homoge&file=pcaxis
  - http://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736167628&menu=ultiDatos&idp=1254735576581
  - http://www.ine.es/dynt3/inebase/index.htm?padre=769
- Population figures:
  - INE. Official population figures, as taken from the revised municipal population register at 1 January each year.

Recommended websites:

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

Risk of poverty or social exclusion

At-risk-of-poverty rate
Percentage of people below the poverty line



Source: INE

- ***In 2017, 26.6% of Spain's population was at risk of poverty or social exclusion. This figure was slightly lower than in 2016 (27.9 %) and 2015 (28.6 %)***
- ***In 2016, Spain ranked sixth (after Bulgaria, Romania, Greece, Italy and Lithuania) within the European Union by at-risk-of-poverty rate***

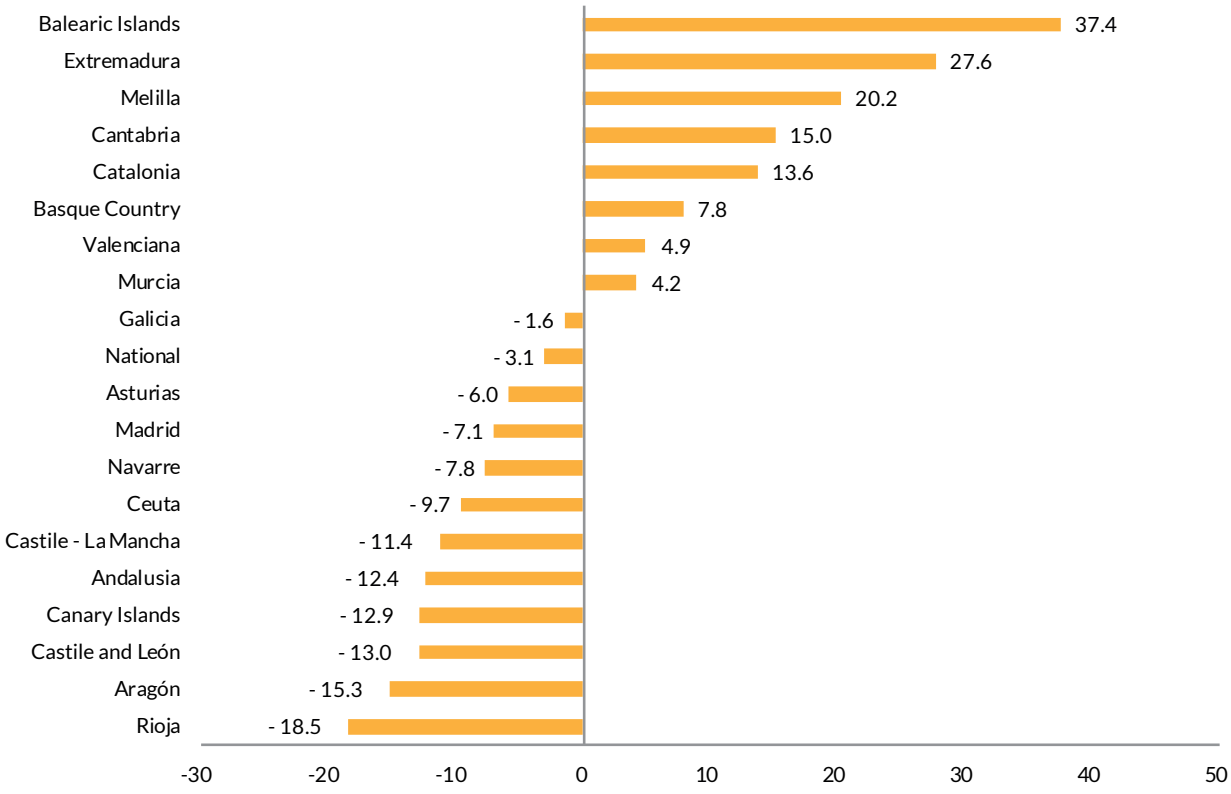
The economic and financial crisis worsened social vulnerability in Spain and led to an increase in the population at risk of poverty or social exclusion. In 2016, and for the first time since 2008, the population at risk of poverty fell, albeit slightly. Nevertheless, the rate remains high and, at 23.5 % for the total population, it is above the European average.

The risk of poverty or social exclusion, an indicator included in the Europe 2020 Strategy, is calculated using information from the ECV (Living Conditions Survey) conducted by the INE and which takes into account the income for the year prior to the interview. In 2017, 26.6 % of Spain's population was at risk of poverty, a percentage slightly below the 27.9 %, 28.6 % and 29.2 % recorded in the three previous years, respectively. Although the trend is downward, the figure is still far from the one recorded in 2008, when the at-risk-of-poverty rate was 23.8 %.

In 2017, the at-risk-of-poverty-or-social-exclusion rate was higher for women than men, the figures standing at 27.1 % and 26 %, respectively. The same is true by age group; in all age groups the at-risk-of-poverty-or-social-exclusion rate was higher for women. The greatest difference by age group was found between women and men aged 16–29 (36.5 % and 33.2 %, respectively).

As regards the differences by autonomous community, in 2017 in most of them the at-risk-of-poverty-or-social-exclusion rate fell, with Rioja (18.5 %) and Aragon (15.3 %) at the forefront. Conversely, in those autonomous communities in which the rate was higher than in 2016, the increase was significant. For example, the rate rose by 37.4 % in the Balearic Islands, by 27.6 % in Extremadura and by 20.2 % in Melilla.

At-risk-of-poverty rate 2016–2017 change (%)



Source: INE

Definition of the indicator:

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.

Methodological notes:

The at-risk-of-poverty rate is the percentage of people below the poverty line.
In the ECV, the earnings used to calculate the variables such as income and at-risk-of-poverty rate are always those of the year before. The population at risk of poverty or social exclusion is the population that finds itself in one of the following situations:

- At risk of poverty (60 % of median income per consumption unit).
- In severe material deprivation (suffering deprivation in at least 4 of the following categories):
  1) Cannot afford to go on holiday for at least one week per year.
  2) Cannot afford to eat meat, chicken or fish at least every other day.
  3) Cannot afford to keep their homes at an adequate temperature.
  4) Unable to meet an unexpected expense of EUR 650.
  5) Have defaulted on payments related to their main home (mortgage, rent, gas bill, community charges, etc.) or purchases bought on credit in the last 12 months.
  6) Cannot afford a car.
  7) Cannot afford a telephone.
  8) Cannot afford a television.
  9) Cannot afford a washing machine.
- In unemployed households or those in which the members of working age worked at less than 20 % of their potential capacity during the baseline year.

Under the Europe 2020 framework, risk of poverty or social exclusion is considered in monetary terms (income level) and adopts a multi-dimensional approach that comprises three sub-indicators: at-risk-of-poverty rate after social transfers, severe material deprivation of goods, and households with very low levels of employment. Under Europe 2020 Strategy terminology, the group of people at risk of poverty or social exclusion are referred to as AROPEs (At Risk of Poverty and/or Exclusion).
The at-risk-of-poverty rate for each year is calculated using the household income for the previous year.

Source:

INE, 2018. ECV. At-risk-of-poverty rate (results by autonomous community).

Recommended websites:

- http://www.ine.es/jaxiT3/Datos.htm?t=10011
- http://www.ine.es/jaxiT3/Tabla.htm?t=9963&L=0

2.2 AIR QUALITY

On 15 December 2017, the PNCA (National Air Quality Plan) 2017–2019 (also known as Plan Aire II) was approved, establishing the framework for Spanish government action on improvement of air quality and continuing the work of Plan Aire I (2013–2016). Applicable from 2017 to 2019, it will lay the foundations for application of the national air-pollution control plan required under Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC.

The text of the plan enjoyed wide consensus and benefited from the input of regional governments and other stakeholders. It was submitted for public consultation in Autumn 2017.

Plan Aire II 's goals are as follows: to ensure compliance with air-quality legislation at all levels (national, European and international), reduce the levels of air emissions of pollutants with greatest impact on health and ecosystems, improve the information available on air quality and raise public awareness, and address the issue of exceedance of the target value for the protection of human health.

It comprises a total of 52 measures, grouped into eight areas: information, environmental taxation, mobility, research, crop and livestock farming, households, industry, and transport. The total budget assigned amounts to EUR 276 million.

The Ministry for Ecological Transition is responsible for 15 of these measures. One of them is to adopt a uniform and comprehensible air-quality index, created consensually with regional governments and local authorities, to improve information about air quality.

Another of the proposed measures is to create a framework protocol for high-pollution episodes in order to improve the information provided to the public and so improve application of the traffic-regulation actions established by municipal authorities.

The report titled Evaluación de la calidad del aire 2016 (Air Quality Assessment 2016), available on the Ministry for Ecological Transition website, publishes the findings of the most recent air-quality assessment carried out in Spain (official since 1 October 2017) and conducts an exhaustive analysis of air quality based on both pollutants and areas and makes special reference to compliance with the values established by law.

The European Environment Agency's report titled Air Quality in Europe – 2017 analyses the effects of pollution, the existing policy measures, the emission sources and, specifically, the situation regarding each pollutant. On the effects of pollution, it indicates that most of the population in Europe's cities remains exposed to air pollution levels that the WHO considers harmful. It also offers estimates on the number of premature deaths in 41 European countries in 2014 due to PM2.5, NO_2 and O_3.

According to the WHO, 9 out of every 10 people worldwide breathe polluted air, although an increasing number of countries are starting to take action to mitigate this situation. It is estimated that 7 million people die each year from environmental pollution: 4.2 million deaths in 2016 due to ambient air pollution and 3.8 million due to household air pollution caused by cooking with polluting fuels and technologies. A huge number of people are exposed to ambient and household air pollution. Because of this overlap, the mortality attributed to these two sources cannot simply be estimated as the sum of the two causes, hence the total estimate of about 7 million deaths per year.

In order to improve consistency across the various measures adopted at local, national, European and global level, in November 2017 the European Commission held the Clean Air Forum. The three main topics addressed were air quality in cities, agriculture and air pollution, and clean air business opportunities. At this event, the EEA unveiled the Air Quality Index. It was developed in partnership with the European Commission and is based on five pollutants harmful to human health and the environment (PM10, PM2.5, O_3, NO_2 and SO_2). It is a new online air-quality information service that offers the public an interactive map showing air quality at the continent's various air-quality measurement stations.

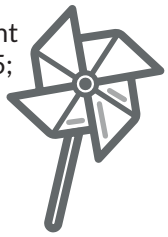
Annual mean concentration de NO_2

- In 2016, there was a decrease in the number of air-quality measurement stations recording levels exceeding the annual limit value (ALV) for NO_2 (40 µg/m³).
- The number of stations recording concentrations of NO_2 less than or equal to the lower assessment threshold (LAT/2) (13 µg/m³) increased between 2001 and 2016, which implies an improvement in air quality, especially considering that it was also accompanied by an increase in the number of measurement stations.

Annual mean concentration of PM10

- In 2016, the annual mean concentration of PM10 improved substantially compared to 2015, with only one station exceeding the ALV of 40 µg/m³.
- Overall, 56.8 % of air quality stations recorded concentrations of less than 20 µg/m³, significantly below the ALV of 40 µg/m³.

Annual mean concentration of PM2.5



- There was a significant improvement in the mean concentration of PM2.5; the annual limit value (25 µg/m³) was not exceeded in any season in 2016.
- In 2016, 80 % of the measurement stations recorded mean concentrations of PM2.5 below 12 µg/m³.

Annual mean concentration of O_3

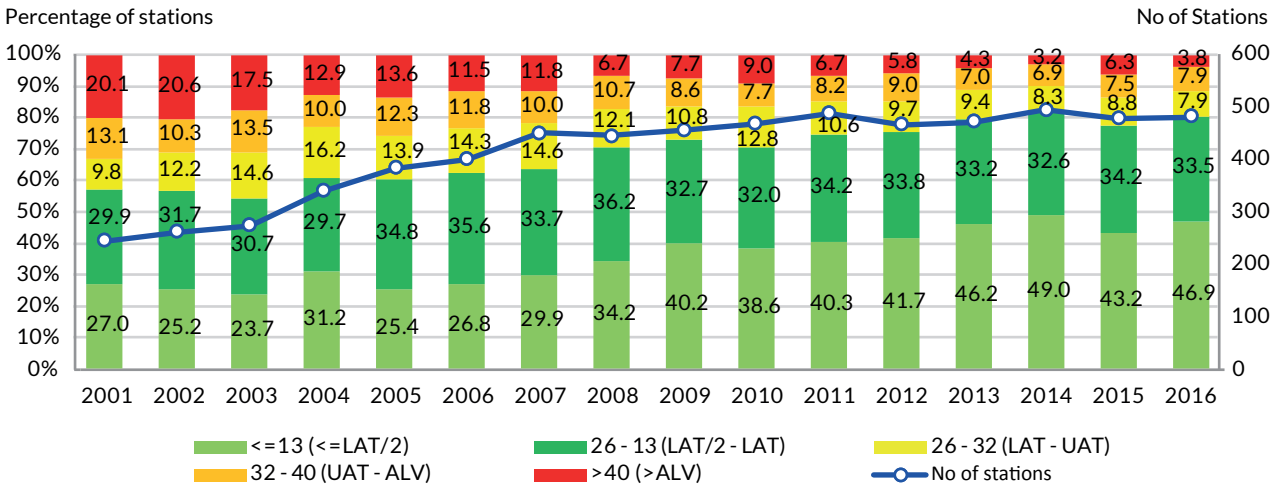
- 2016 recorded the lowest number of stations in which the target value for health protection was exceeded since the assessment of tropospheric ozone began.
- The number of stations recording concentrations of O_3 of less than or equal to 120 µg/m³ (long-term target) increased by 12.5 % in the last year in the series, rising from 104 stations in 2015 to 117 in 2016.

Regional background air quality: mean concentrations of SO_2, NO_2, PM10, PM2.5 and O_3

- Mean regional background air quality improved in 2016, with mean concentrations of all five pollutants monitored dropping.
- Over 2005–2016, the annual mean concentrations of SO_2, NO_2, PM10, PM2.5 and O_3 generally fell, although there were one-off increases in some cases.

Annual mean **concentration** of **NO_2**

Annual mean concentration of NO_2: stations used for air quality assessment classified according to the ranges established in the legislation (% and total No of stations)



Source: MITECO

- ***In 2016, there was a decrease in the number of air-quality measurement stations recording levels exceeding the annual limit value for NO_2 (40 µg/m³)***
- ***The number of stations recording concentrations of NO_2 less than or equal to the lower assessment threshold (13 µg/m³) increased between 2001 and 2016, which implies an improvement in air quality, especially considering that it was also accompanied by an increase in the number of measurement stations***

The 2016 air-quality assessment carried out by the Ministry of Agriculture and Fisheries, Food and Environment (now the Ministry for Ecological Transition) in relation to NO_2 shows a decrease in the number of metropolitan areas in which the limit values established in the legislation were exceeded. The hourly limit value (HLV) was only exceeded in a single case, although the ALV was exceeded on six occasions.

The 480 measurement stations in operation in 2016 showed an improvement in air quality in relation to NO_2 as regards the ALV for the protection of human health, since over the year there was an increase in the number of stations that detected lower concentrations of NO_2.

Over 2001–2016, there was an increase in the percentage of stations recording concentrations of NO_2 less than or equal to the LAT/2 (13 µg/m³), rising from 27 % to 46.9 %. In addition, this improvement in quality was accompanied by an increase in the number of measurement stations used in the assessment (the number almost doubled). EEA Report No 13/2017 titled Air Quality in Europe – 2017 states that Spain was one of 22 EU-28 countries to record NO_2 concentrations above the ALV. The stations that recorded the highest concentrations were those monitoring traffic, which is the main source of NO_2 and NO (which when combined with O_3 becomes NO_2) in cities. In Spain, according to the INEA (National Inventory of Air Emissions) road traffic is responsible for most NO_x emissions.

Definition of the indicator:

For nitrogen oxides (measured as NO_2), the indicator shows the percentage of stations included in each of the five ranges into which the annual mean concentration of NO_2 is classified (measured in µg/m^3), referring to the lower assessment threshold (LAT), upper assessment threshold (UAT) and annual limit value (ALV): These ranges are as follows:

- NO_2 concentrations less than or equal to the LAT/2 (13 µg/m^3)
- NO_2 concentrations between the LAT/2 and the LAT (13–26 µg/m^3)
- NO_2 concentrations between the LAT and the UAT (26–32 µg/m^3)
- NO_2 concentrations between the UAT and the ALV (32–40 µg/m^3)
- NO_2 concentrations greater than the ALV (>40 µg/m^3)

Methodological notes:

- Mainly generated by combustion (transport, industrial facilities, power generation, etc.), the highest NO_x levels are usually reached in major urban areas and along heavily traversed roads (essentially due to diesel engines).
- The air quality targets set by current legislation for nitrogen oxides are as follows:
  - NO_2 hourly limit value for the protection of human health (compliance date: 1 January 2010): 200 µg/m^3. This is the mean hourly value that must not be exceeded on more than 18 occasions per calendar year.
  - NO_2 annual limit value for the protection of human health (compliance date: 1 January 2010): 40 µg/m^3 during the calendar year.
  - NO_x limit value (new critical level according to Directive 2008/50/EC and RD 102/2011) for the protection of vegetation: 30 µg/m^3 during the calendar year.
- The indicator refers only to the NO_2 annual limit value because, although nitrogen oxides include both nitrogen monoxide (NO) and nitrogen dioxide (NO_2), the latter is the main chemical form that has adverse effects on health and is the parameter covered by Community legislation on health protection. Royal Decree 102/2011 on improvement of air quality transposed the contents of Directive 2008/50/EC and Directive 2004/107/EC into Spanish law. For its part, Royal Decree 39/2017 transposed into Spanish law Directive 2015/1480 amending the two previous ones and establishing regulations concerning reference methods, data validation and location of measuring points for background air-quality assessment and includes the new requirements for information exchange laid down in Decision 2011/850/ EU. Moreover, the aforementioned Royal Decree envisages approval of a National Air Quality Index that will provide the public with clear, up-to-date and country-wide information about air quality.
- The references for the regulated values can be found in the report titled *Evaluación de la calidad del aire en España 2016* (Assessment of Air Quality in Spain – 2016), a document published annually by the Directorate-General for Biodiversity and Environmental Quality at the Ministry for Ecological Transition.

Source:

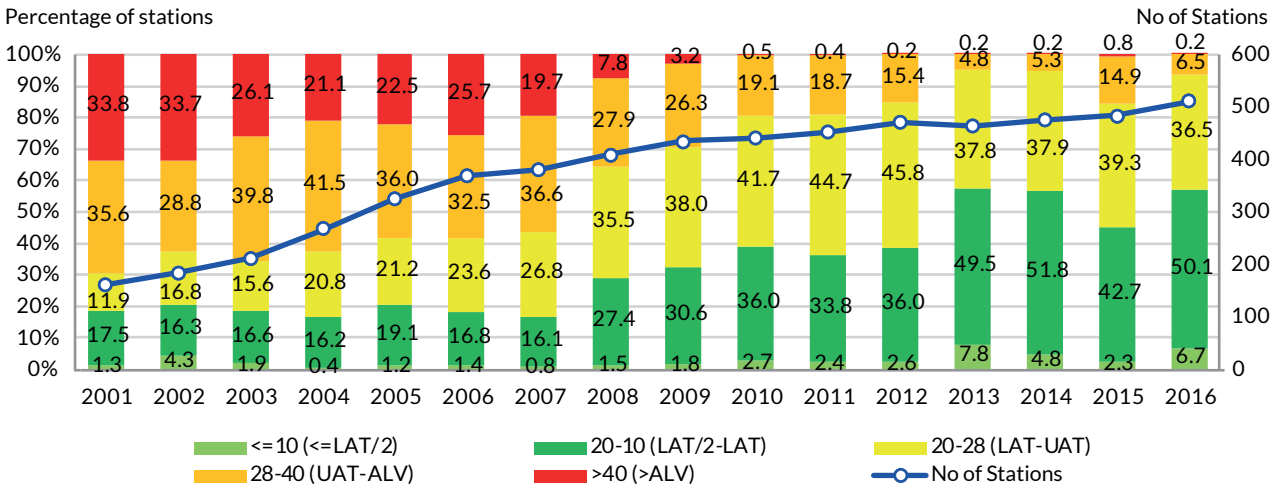
Ministry for Ecological Transition, 2018. Air Quality Database. Directorate-General for Biodiversity and Environmental Quality. Data provided on express request.

Recommended websites:

- https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/
- https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/visor/default.aspx
- https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/documentacion-oficial/Analisis-CA.aspx
- https://www.eea.europa.eu/publications/air-quality-in-europe-2017

Annual mean **concentration** of **PM10**

Annual mean concentration of PM10: stations used for air quality assessment classified according to the ranges established in the legislation (% and total No of stations)



Source: MITECO

- ***In 2016, the annual mean concentration of PM10 improved substantially compared to 2015, with only one station exceeding the ALV of 40 µg/m³***
- ***Overall, 56.8 % of air quality stations recorded concentrations of less than 20 µg/m³, significantly below the ALV of 40 µg/m³***

As regards concentration of PM10, the report on air quality in Spain reveals that in 2016 the annual limit value was only exceeded once (in the zone denominated ES0302 Asturias Central) while the daily limit value was exceeded just three times (ES0128 Zona Villanueva del Arzobispo, ES0302 Asturias Central and ES0906 Plana de Vic).

In 2016, annual mean concentration of PM10, calculated from the recordings taken at 509 measurement stations, showed a substantial improvement on 2015, returning to the level of previous years. As mentioned above, in the latter year only one station (representing 0.2 % of the total) recorded a particulate matter concentration above the ALV (40 µg/m³). At the other extreme, 6.7 % of the stations recorded mean values below 10 µg/m³ and 50.1 % recorded mean concentrations between 10 and 20 µg/m³. Overall, 56.8 % of the stations recorded concentrations of PM10 below 20 µg/m³.

EEA Report No 13/2017 titled Air Quality in Europe – 2017 shows that in 2015 only 3 % of EU-28 stations recorded concentrations above the ALV for PM10 (40 µg/m³). However, 54 % of the stations showed annual mean concentrations above the stricter WHO value for PM10 (20 µg/m³).

According to this report, in 2015 the residential, commercial and institutional sector was responsible for most emissions of PM10 in the EU-28, accounting for about 42 % of the total. It was followed by industrial processes and use of products (17 %) and agriculture (15 %). In Spain, non-industrial combustion plants contributed 27.5 % that year, with agriculture close behind at 25.8 %.

Definition of the indicator:

For particulate matter with a diameter of more than 10 micrometres (PM10), the indicator shows the percentage of stations included in each of the five ranges into which the annual mean concentration of PM10 is classified (measured in µg/m^3), referring to the lower assessment threshold (LAT), upper assessment threshold (UAT) and annual limit value (ALV). These ranges are as follows:

- PM10 concentrations less than or equal to the LAT/2 (10 µg/m^3).
- PM10 concentrations between the LAT/2 and the LAT (10–20 µg/m^3).
- PM10 concentrations between the LAT and the UAT (20–28 µg/m^3).
- PM10 concentrations between the UAT and the ALV (28–40 µg/m^3).
- PM10 concentrations greater than the ALV (>40 µg/m^3).

Methodological notes:

- The origin of particulate matter is either primary (when emitted directly into the atmosphere, either naturally or as a consequence of human activity) or secondary (if generated in the atmosphere as a consequence of chemical reactions involving precursor gases, mainly SO_2, NO_x, NH_3 and NMVOC). In urban environments, most particulate matter is generated directly by road traffic. This is followed by secondary particles; industrial, residential and domestic emissions; construction; mineral dust in suspension (the contribution from natural sources such as dust from the Sahara is significant) and marine aerosols and emissions by shipping vessels in coastal areas.
- The EEA report titled Air Quality in Europe – 2017 describes as the origins of particulate matter both natural sources (sea salt, dust in suspension, pollen and volcanic ash) and anthropogenic ones (combustion in power generation, domestic heating and transport, industrial and waste incineration, agriculture and road traffic due to brake and tyre wear).
- The air quality targets set by current legislation for PM10 are as follows:
  - PM10 daily limit value for the protection of human health (compliance date: 1 January 2005): 50 µg/m^3. This is the mean value over a 24-hour period that must not be exceeded on more than 35 occasions per calendar year.
  - PM10 annual limit value for the protection of human health (compliance date: 1 January 2005): 40 µg/m^3 during the calendar year.
- The references for the regulated values can be found in the report titled *Evaluación de la calidad del aire en España 2016* (Assessment of Air Quality in Spain – 2016), a document published annually by the Directorate-General for Biodiversity and Environmental Quality at the Ministry for Ecological Transition.
- Spain has always had high levels of particulate matter, the concentration of which increases naturally due to incursions of African dust. A procedure has therefore been established to assess the impact such natural sources have on these levels and so determine the level attributable to human activity so as not to include exceedances caused by those natural sources when assessing compliance with limit values.

Source:

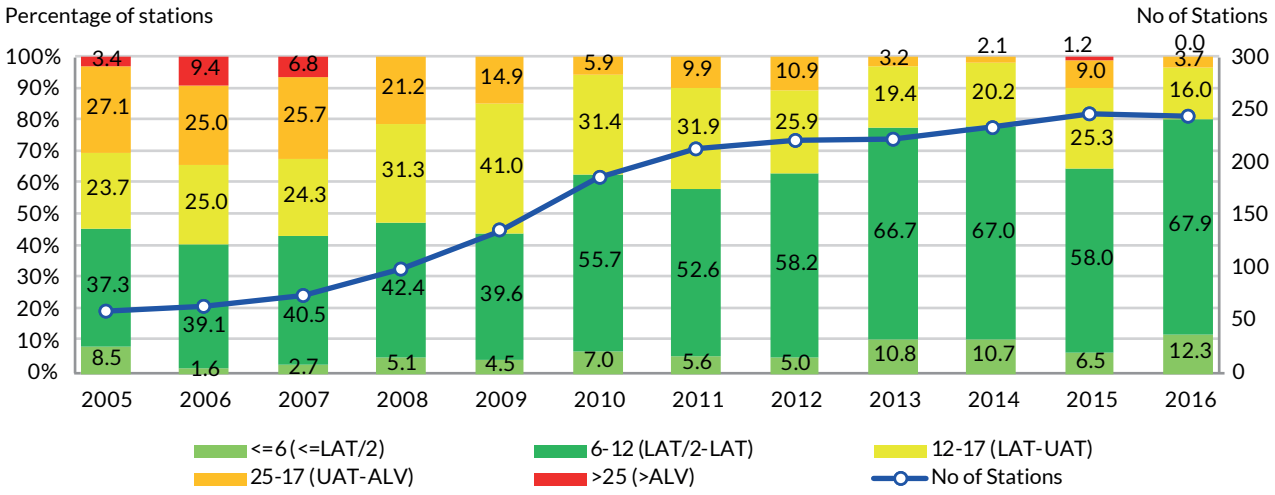
Ministry for Ecological Transition, 2018. Air Quality Database. Directorate-General for Biodiversity and Environmental Quality. Data provided on express request.

Recommended websites:

- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/
- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/visor/default.aspx
- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/documentacion-oficial/Analisis-CA.aspx
- https://www.eea.europa.eu/publications/air-quality-in-europe-2017

Annual mean **concentration** of **PM2.5**

Annual mean concentration of PM2.5. stations used for air quality assessment classified according to the ranges established in the legislation (% and total No of stations)



Source: MITECO

- ***There was a significant improvement in the mean concentration of PM2.5; the annual limit value (25 µg/m³) was not exceeded in any season in 2016***
- ***In 2016, 80 % of the measurement stations recorded mean concentrations of PM2.5 below 12 µg/m³***

In 2016, PM2.5 levels once again remained below the limit value, as was the case since 2008 for every year except last year when three stations recorded levels exceeding the LV. Since 2005, there has been a significant improvement in mean concentrations of PM2.5.

As the graph shows, 2016 was one of the best years in the period studied as regards PM2.5 concentrations, since over 80 % of the stations recorded mean concentrations of PM2.5 below 12 µg/m³ and 12.3 % recorded levels below 6 µg/m³.

Meanwhile, in 2016 the Average Exposure Indicator (AEI), calculated as the 3-year mean concentration of PM2.5 (in this case for 2014–2016) weighted with the population at all the sampling points, was slightly lower than in 2015. The target for this indicator is to achieve a 15 % decrease on the 2011 value by 2020. In 2016, the reduction stood at 12.1 %. Turning to the EU-28, EEA Report No 13/2017 titled Air Quality in Europe – 2017 states that in 2015 PM2.5 concentrations were above the limit value in three Member States (which did not include Spain). The limit value was mainly exceeded at urban or suburban stations.

At the same time, 75 % of the stations in 27 of the 32 countries belonging to the EEA that submitted valid data exceeded the WHO guideline reference values for annual mean PM2.5 (10 µg/m³).

Definition of the indicator:

For particulate matter with a diameter of less than 2.5 micrometres (PM2.5), the indicator shows the percentage of stations included in each of the five ranges into which the annual mean concentration of PM2.5 is classified (measured in µg/m^3), referring to the lower assessment threshold (LAT), upper assessment threshold (UAT) and annual limit value (ALV). These ranges are as follows:

- PM2.5 concentrations less than or equal to the LAT/2 (6 µg/m^3).
- PM2.5 concentrations between the LAT/2 and the LAT (6–12 µg/m^3).
- PM2.5 concentrations between the LAT and the UAT (12–17 µg/m^3).
- PM2.5 concentrations between the UAT and the ALV (17–25 µg/m^3).
- PM2.5 concentrations greater than the ALV (>25 µg/m^3).

Methodological notes:

- As in the case of PM10, PM2.5 may have a primary origin when emitted directly into the atmosphere, or a secondary one if generated in the atmosphere as a result of chemical reactions involving precursor gases. In urban areas, most particles are produced by road traffic (see methodological notes for the PM10 indicator).
- Current regulations set the following air quality targets for PM2.5:
  - PM2.5 annual target value for the protection of human health (compliance date: 1 January 2010): 25 µg/m^3. This is over a calendar year.
  - PM2.5 annual limit value for the protection of human health (compliance date: 1 January 2015): 25 µg/m^3.
- The references for the regulated values can be found in the report titled *Evaluación de la calidad del aire en España 2016* (Assessment of Air Quality in Spain – 2016), a document published annually by the Directorate-General for Biodiversity and Environmental Quality at the Ministry for Ecological Transition.

Source:

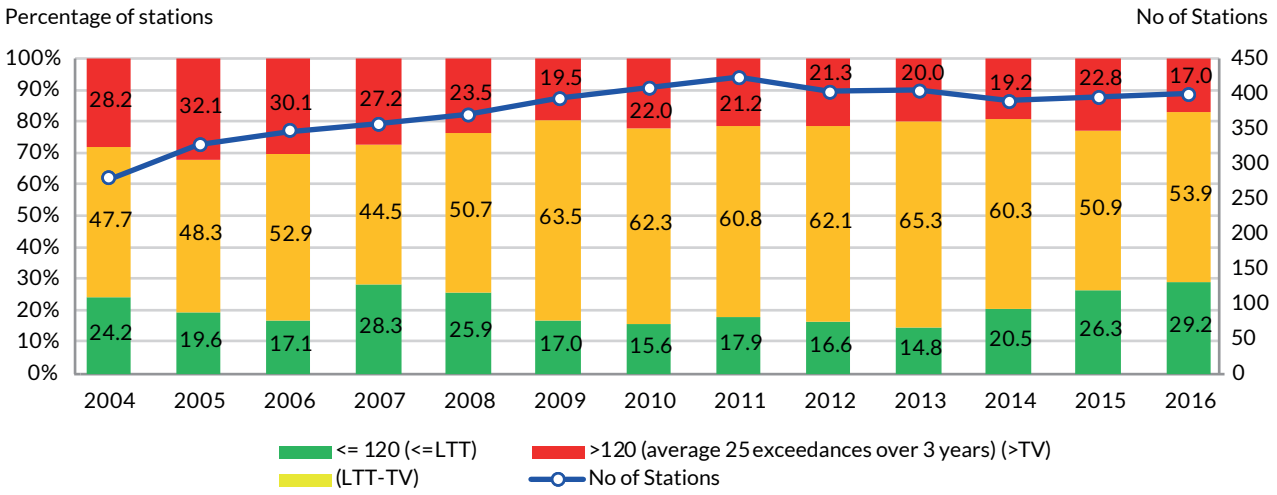
Ministry for Ecological Transition, 2018. Air Quality Database. Directorate-General for Biodiversity and Environmental Quality. Data provided on express request.

Recommended websites:

- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/
- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/visor/default.aspx
- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/documentacion-oficial/Analisis-CA.aspx
- https://www.eea.europa.eu/publications/air-quality-in-europe-2017

Annual mean **concentration** of **O_3**

O_3 health: stations used for air quality assessment classified according to the ranges established in the legislation (% and total No of stations)



Source: MITECO

- ***2016 recorded the lowest number of stations in which the target value for health protection was exceeded since the assessment of tropospheric ozone began***
- ***The number of stations recording concentrations of O_3 of less than or equal to 120 µg/m³ (long-term target) increased by 12.5 % in the last year in the series, rising from 104 stations in 2015 to 117 in 2016***

Tropospheric ozone (O_3) concentration was first included in the official assessment of air quality in 2004. In the period since then, the lowest number of stations in which the target value for health protection was exceeded was recorded in 2016.

The high levels of O_3 recorded in both suburban and rural areas are conditioned by the high levels of sun exposure and of emissions of ozone precursors (NO_x and volatile organic compounds).

In 2016, 68 stations recorded levels exceeding the target value for the protection of health (concentration of 120 µg/m³ and 25 exceedances over 3 years). These represented 17 % of the total and were a significant decrease on the 90 that recorded exceedances in 2015. This 24.4 % drop in the number of stations implies an improvement in assessment of air quality regarding this pollutant.

This improvement was due to the greater number of stations recording O_3 concentrations less than or equal to the long-term target of 120 µg/m³, which rose from 104 stations in 2015 to 117 in 2016 (up 12.5 %). It was also helped by the 7.5 % rise in the number of stations registering mean concentrations between the LTT and the TV (216 in 2016 versus 201 in 2015). In short, 2016 showed an increase in the percentage of stations within the better air-quality ranges with regard to ozone concentration.

It should be noted that 2016 was the fourth-hottest year since records began; the summer was very hot and the temperature was 1.2 °C higher than the average for the season. Given that high levels of O_3 are determined by high temperatures, high levels of sunshine (more intense in summer) and the levels of emissions of ozone precursors (NO_x and volatile organic compounds), the improvement in air quality as regards O_3, characterised by a lower number of zones in which the target value for the protection of health was exceeded, could be due to a reduction in precursor emissions. As is discussed in Chapter 2.2 Air emissions and climate change, in 2016 tropospheric ozone precursor emissions fell by 1.8 %.

Definition of the indicator:

For ozone (O_3), the indicator shows the percentage of stations with sufficient data in each of the three ranges into which the maximum daily values of the eight-hour means are divided, which, for the protection of human health, must not exceed the average values on more than 25 occasions over three years (target value) or in one calendar year (long-term target). These ranges are as follows:

- O_3 concentrations less than or equal to the LTT (120 µg/m^3)
- O_3 concentrations between the LTT and the TV
- O_3 concentrations greater than the TV (120 µg/m^3 and 25 exceedances within 3 years)

Methodological notes:

- Current regulations set the following air quality targets for ozone for the protection of human health:
  - O_3 target value for the protection of human health (compliance date: 1 January 2010; period 2010–2012): 120 µg/m^3. This is the maximum daily eight-hour mean. It must not exceed the average on more than 25 occasions over a 3-year period.
  - Long-term target for the protection of human health (compliance date: not established): 120 µg/m^3. This is the maximum daily eight-hour mean within a calendar year
- The references for the regulated values can be found in the report titled *Evaluación de la calidad del aire en España 2016* (Assessment of Air Quality in Spain – 2016), a document published annually by the Directorate-General for Biodiversity and Environmental Quality at the Ministry for Ecological Transition.
- O_3 acts as a powerful and aggressive oxidising agent in the troposphere and has negative effects on health and ecosystems. It also contributes to other global problems such as climate change. Tropospheric O_3 is generated secondarily from other precursor gases (mainly NO_x and VOCs). Since solar radiation greatly influences its formation, its levels are higher in southern Europe during spring and summer.

Source:

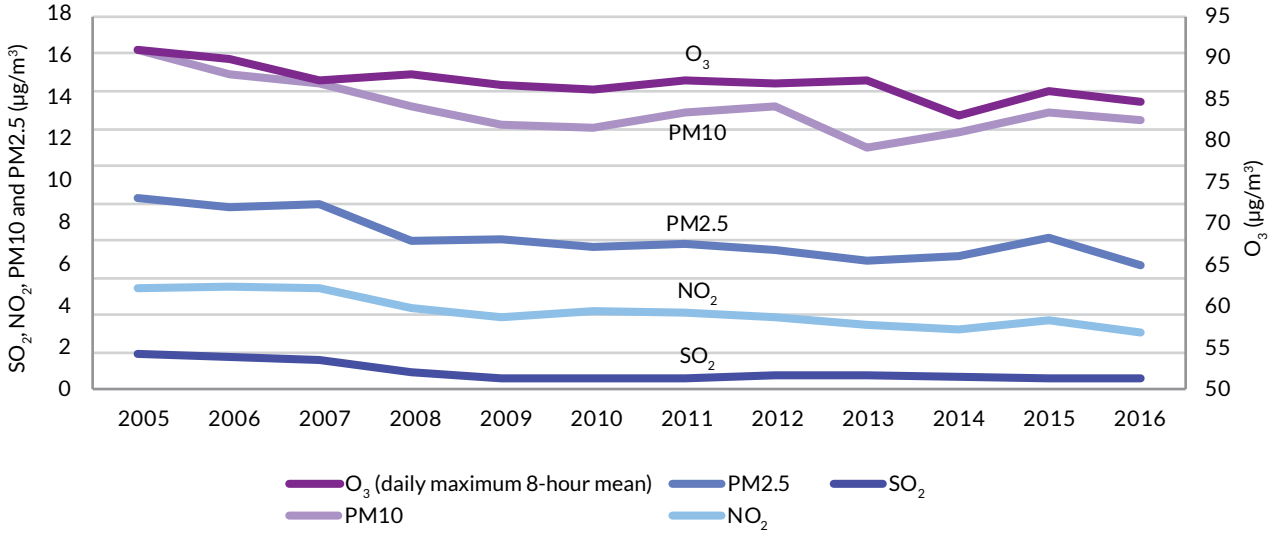
Ministry for Ecological Transition, 2018. Air Quality Database. Directorate-General for Biodiversity and Environmental Quality. Data provided on express request.

Recommended websites:

- https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/
- https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/visor/default.aspx
- https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/documentacion-oficial/Analisis-CA.aspx
- https://www.eea.europa.eu/publications/air-quality-in-europe-2017

Regional background air quality: mean concentrations of **SO_2, NO_2, PM10, PM2.5** and **O_3**

Mean concentration of annual means at EMEP Network background air stations.
(Particulate matter: daily values; SO_2 and NO_2: one-hour values; O_3: daily eight-hour maximum values)



Source: MITECO

- ***Mean regional background air quality improved in 2016, with mean concentrations of all five pollutants monitored dropping***
- ***Over 2005–2016, the annual mean concentrations of SO_2, NO_2, PM2.5, PM10 and O_3 generally fell, although there were one-off increases in some cases***

The data for 2016 show that mean regional background air quality improved at the measurement stations and year-on-year decreases were recorded in mean concentrations of the five pollutants monitored. Specifically, and ranked in ascending order by percentage decrease, annual mean concentration of O_3 fell by 1.4 %, that of PM10 by 2.8 %, that of SO_2 by 8.9 % and that of NO_2 and PM2.5 by 17.8 %.

Mean concentration of SO_2 dropped by 70 % over 2005–2016. The decrease in 2016 continued the trend observed since 2005. The reasons for this decline include technological improvements in high-temperature industrial and power-generation processes (sectors employing sulphur-containing fossil fuels, such as oil and solid fuels).

Over the same period, mean concentration of NO_2 fell by 43.3 %. After an upturn in 2015, the downward trend observed since 2010 was resumed. Technological improvements in vehicles and fuels, as well as improvements in combustion processes in the energy industries, are behind this decline. Nevertheless, widespread use of private vehicles makes it difficult to achieve greater reductions in concentrations of this pollutant.

The sharp downturn in mean concentration of PM2.5 in the last year analysed means that this pollutant, which is one of the most harmful to human health, has decreased by 34.5 % since 2005, surpassing the reduction in PM10, which shrank by 20.8 % over the same period. The causes of this descent are not easy to determine, since

particulate-matter emission sources vary widely (road traffic —due to brake and tyre wear— mining, industry, domestic and residential emissions, as well as the African mineral dust frequently found in Spain's air).

Finally, mean ozone concentration shrank by 6.9 % between 2005 and 2016. As ozone is formed by a photochemical reaction between nitrogen oxides and volatile organic compounds with the help of solar radiation, concentrations of this oxidant are found a long way from the emission sources and, therefore, it is at higher concentrations in background air stations.

Definition of the indicator:

The indicator shows the mean concentrations of the annual mean for SO_2, NO_2, PM10, PM2.5 and O_3 at the background air stations in the EMEP/GAW/CAMP network. Particulate matter concentrations are calculated from the daily data, whereas the mean concentrations of SO_2 and NO_2 are calculated using one-hour data. To calculate the mean concentrations of O_3, daily eight-hour maximum values are used.

Methodological notes:

- The indicator assesses general background air pollution in Spain. In order to do so, it shows the mean of the mean concentrations at all the stations included in the EMEP/GAW/CAMP network per pollutant and year. It does not provide information on the isolated exceedances that can occur at some stations.
- The EMEP, established under the framework of the Geneva Convention, measures background air pollution. The Global Atmospheric Watch (GAW) is a project implemented by the World Meteorological Organization (WMO). The Comprehensive Atmospheric Monitoring Programme (CAMP) is fruit of the OSPAR Convention and is designed to identify the atmospheric inputs in the North-East Atlantic region and examine their impact on the marine environment. The EMEP/GAW/CAMP network, which seeks to meet the aims of the aforementioned programmes, monitors tropospheric levels of background air pollution and sedimentation on the Earth's surface in order to protect the environment.
- The Spanish EMEP/GAW/CAMP network makes it possible for the government to comply with its pollutant measurement commitments under the three above-mentioned programmes. In addition to determining the levels of background air pollution in a region, the measurements obtained make it possible to evaluate how pollution is carried from emission sources located long distances from stations. The measurements analyse both the pollutants regulated by legislation (thus supporting regional and local networks) and other non-regulated pollutants used in scientific studies.
- The references for the regulated values can be found in the report titled *Evaluación de la calidad del aire en España 2016* (Assessment of Air Quality in Spain – 2016), a document published annually by the Directorate-General for Biodiversity and Environmental Quality at the Ministry for Ecological Transition.
- It is important to remember that the analysis carried out shows the mean situation; there can also be times when concentrations increase and when they exceed regulated values.

Source:

Ministry for Ecological Transition, 2018. Air Quality Database. Directorate-General for Biodiversity and Environmental Quality. Data provided on express request.

Recommended websites:

- http://www.aemet.es/es/eltiempo/observacion/contaminacionfondo
- https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/informeevaluacion-calidadaireespana2016_tcm30-431898.pdf
- https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/
- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/visor/default.aspx

2.3 AIR EMISSIONS AND CLIMATE CHANGE

The Paris Agreement, adopted in December 2015, aims to prevent the mean global temperature increasing by more than 2 °C above pre-industrial levels while seeking, moreover, to promote additional efforts to prevent global warming exceeding 1.5 °C.

Spain ratified the Paris Agreement before the United Nations on 12 January 2017 and the terms came into effect in this country 30 days later.

By signing and ratifying this agreement, Spain, as an EU Member State, is committed to complying with the targets submitted by the European Union to meet the goals of the Paris Agreement. These can be summarised as follows:

Binding targets	Indicative targets
Minimum reduction of the EU's GHG emissions to 40 % of 1990 levels by 2030.	Minimum improvement in energy efficiency of 27 % by 2030.
Minimum 27 % share of renewable energy within the EU's total energy consumption by 2030.	Interconnection of 15 % of installed electricity capacity with the rest of Europe by 2030.

There have been several initiatives over the last year in this area. Thus, with the aim of limiting GHG emissions, the Spanish government adopted Royal Decree 115/2017 of 17 February 2017 regulating both the marketing and handling of fluorinated gases and the devices that contain them and the certification of the professionals who use them, thereby reinforcing the requirements placed on operators and holders of research permits and operating licences.

Royal Decree 1042/2017 of 22 December 2017 was adopted to limit air emissions of pollutants originating from medium-sized combustion plants (e.g. plants with a rated thermal input equal to or greater than 1 MW and less than 50 MW). This decree transposes the Community directive into Spanish law and updates the *Catálogo de Actividades Potencialmente Contaminadoras de la Atmósfera* (Catalogue of Potentially Air-Polluting Activities), establishing emission limit values for pollutants such as sulphur dioxide, nitrogen oxides and particulate matter. The decree also lays down that regional governments must keep a record of all medium-sized combustion facilities.

At the end of the year, the PNCA (National Air Quality Plan) 2017–2019 was approved, establishing the framework for Spanish government action to improve air quality and continue the work of its previous iteration (Plan Aire I 2013–2016). The 52 measures adopted are aimed at ensuring compliance with national and international legislation, reducing pollution, improving information on air quality and raising public awareness. These measures complement the action plans approved by the regional governments and local authorities, which have the power to monitor and manage air quality in Spain. Among the main measures are the creation of financial incentives to improve buildings' energy efficiency, aid to upgrade the national vehicle fleet and efforts to encourage use of alternative-energy vehicles.

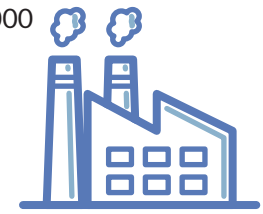
In addition, during 2017 broad public consultation resulted in the first draft of the future law on climate change and energy transition, which is intended to be a key instrument in meeting Spain's energy and climate commitments to the EU, as well as in complying with the Paris Agreement to combat climate change.

Among the initiatives promoted by the Ministry for Ecological Transition in its fight against climate change, the annual calls for Clima projects to reduce greenhouse gases in Spain, the PIMA plans to promote protection of the environment, and the carbon footprint calculation are particularly noteworthy.

Clima projects aim to prevent emissions in diffuse sectors such as transport, housing, waste, agriculture and livestock farming through public-private partnerships. By supporting and encouraging low-carbon activities, this initiative allows the FES-CO_2 (Carbon Fund) to acquire the verified emissions reductions that the projects selected generate. For their part, the PIMA plans allow the implementation of measures to promote actions to improve the environment and integrate environmental quality policies with those combating climate change. The carbon footprint calculation is an initiative launched in 2014 to promote the fight against climate change among Spanish organisations and companies that, via entry in a purpose-created register, gives official recognition to organisations that calculate their environmental impact in terms of their emissions. To enrol, organisations must have a carbon footprint-reduction plan in place.

Greenhouse gas emissions

- In 2016, GHG emissions fell 3.3 % year on year, resuming the downward trend that began in 2007.
- In 2016, Spain accounted for 7.5 % of the EU-28's total GHG emissions.
- Spain had the ninth-lowest emissions per capita (6.9 kt CO_2-eq/1000 inhab) and the thirteenth-lowest per unit of GDP.



Particulate matter emissions

- Particulate matter emissions have remained practically stable since 2013 and the level did not vary significantly year on year.
- Spain has lowered its PM2.5 emissions by 31 % since 2000, achieving a reduction above the EU-28 average (26 % decrease).

Tropospheric ozone precursor and acidifying and eutrophying gas emissions

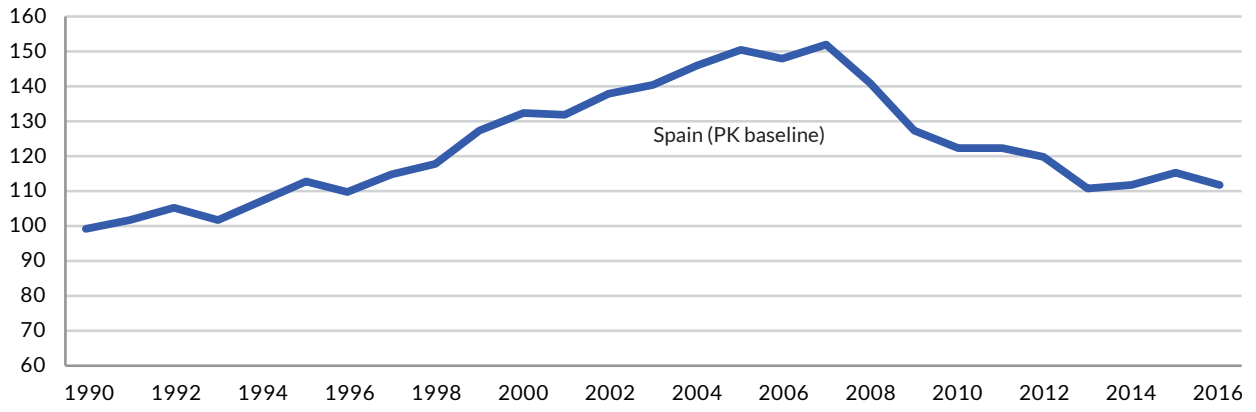
- In 2016, aggregate acidifying and eutrophying emissions decreased by 4 %, whereas those of ozone precursors increased by 1.8 %.
- Between 1990 and 2016, acidifying and eutrophying emissions fell by 57.5 % and those of ozone precursors dropped by 45.8 %.
- NO_x, NMVOC and SO_x emissions have remained below the maximum permissible limits since 2010. Only NH_3 emissions (39 %) exceeded their ceiling in 2016.

Clima projects financed by the Carbon Fund

- In 2017, 62 Clima projects and programmes were selected for financing under the Carbon Fund for a Sustainable Economy, a similar number to previous years.
- The highest number of proposals selected addressed the housing sector, while applications targeting the waste sector increased by 30 %.

Greenhouse gas emissions

Greenhouse gas emissions (CO_2-equivalent)
Index: 1990=100; 1995=100 for fluorinated gases



Source: EEA

- ***In 2016, GHG emissions fell 3.3 % year on year, resuming the downward trend that began in 2007***
- ***In 2016, Spain accounted for 7.5 % of the EU-28's total GHG emissions***
- ***Spain had the ninth-lowest emissions per capita (6.9 kt CO_2-eq/1000 inhab) and the thirteenth-lowest per unit of GDP (304.5 kg CO_2-eq/€)***

In 2016, after two consecutive years of increases, greenhouse gas emissions of the six gases included in the Kyoto Protocol fell by 3.3 % year on year, doing so against a backdrop of economic growth. This decrease marks a return to the downward trend in these emissions that began in 2007. The total reduction now stands at 26.8 % and emissions have fallen below 1995 levels.

Total emissions in 2016 amounted to 324 707 kt of CO_2 equivalent, of which two thirds were generated by the energy sector, barely 1 % less than the year before. The decrease in emissions by the energy sector is due in part to a 2.2 % drop in power generation. However, above all, it is due to the significant reduction in the use of coal to generate electricity. Not all sectors contributed to the decrease. In fact, there was a 3.5 % increase in emissions by the transport sector, which accounted for 27 % of the total. The increases in emissions by domestic road and air transport, produced in the context of the above-mentioned economic expansion, stand out particularly.

The residential, commercial and institutional sector's emissions increased by 3.6 %, while those produced by combustion in industry only grew by 1 %, attributable to the latter's changing energy mix. The industrial sector as a whole reduced its overall emissions moderately thanks to the strong drop (11 %) in emissions from metallurgical processes and to the more moderate reduction in fluorinated gases. Following provisional application since 2014, the tax on fluorinated gases came into full force in 2016, leading to a fall in usage. Emissions from the food industry increased strongly (11.4 %), as did those deriving from the production of cement, lime and glass (up 4.7 %). However, other industries reduced their emissions significantly, with the chemicals and steel sectors

cutting them by 10 % and 5.2 % respectively. Agriculture's share remained unchanged year on year, accounting for 11 % of total emissions. Nevertheless, this represented a reduction in absolute terms because the national total decreased.

While the emissions included in the emission trading scheme were responsible for 38.1 % (10 % less than in 2015), the diffuse sectors' emissions increased by 1.2 % year on year. Thus, in 2016 they accounted for 61.1 % of total emissions, nevertheless remaining below the annual emission allocation for 2016.

By type of gas, CO_2 emissions predominated, accounting for 80 % of the total, followed by methane (CH_4) with 12 %. The lowest emissions were those of N_2O (5 %) and fluorinated gases (3 %). These values are very similar to those of the previous year, showing a continuance of Spain's production model although, little by little, absolute emission values are falling.

At 7.7 %, Spain's contribution to total EU-28 emissions in 2016 was slightly lower than the year before, though it was once more the country with the sixth-highest emissions after Germany, the United Kingdom, France, Italy and Poland. Per capita emissions fell year on year to 6.9 kt CO_2-eq/1000 inhab, positioning it 23 % below the European average and giving Spain the ninth-lowest emissions (both figures refer to total emissions, including aviation).

Emissions per unit of GDP improved substantially, since GDP rose and emissions fell, placing Spain 13th in the EU-28 (304.5 kgCO_2-eq/€).

At European level, total GHG emissions decreased slightly thanks to the decline in the use of coal for heating and power generation and despite a third consecutive year of increased emissions from transport. The overall volume has fallen 23 % since 1990. One of the factors that lessened the reduction was the increase in the number of air passengers, which drove a 7.6 % rise in aviation's emissions. Although emissions from other sectors (transport, housing, agriculture and waste) increased by 0.9 % due to climate events and increased transport use, emissions from these sectors remained 11 % below 2005 levels. The projections show that the EU as a whole, and Spain in particular, will remain below the 2020 target, although to meet the 2030 objectives efforts will need to be stepped up.

Definition of the indicator:

The indicator shows Spain's aggregate emissions of the greenhouse gases included in the Kyoto Protocol, expressed in CO_2-eq.

Methodological notes:

- This indicator shows total emissions of the six principal gases that contribute to the greenhouse effect (CO_2, CH_4,N_2O, HFCs, PFCs and SF_6), expressed jointly as CO_2 equivalent (CO_2-eq) in the form of an index referring to emissions for the Kyoto Protocol baseline year (1990=100; 1995=100 for fluorinated gases). For this purpose, the global warming potentials of the 4th IPCC assessment report were used.
- Only gross emissions are included, excluding the net sink (capture minus emissions) produced by Land Use, Land-Use Change and Forestry (LULUCF).
- The emissions used in calculating the greenhouse gas indicator are those reported to the Secretariat of the UN Framework Convention on Climate Change and conform to the Common Reporting Format classification.
- The differences between the series used in this edition of the Environmental Profile and those used in previous years are mainly due to internationally agreed changes in the emission factors employed for each pollutant and to the methodological adjustments that modify the activities included in the various emission source and sink categories.

Source:

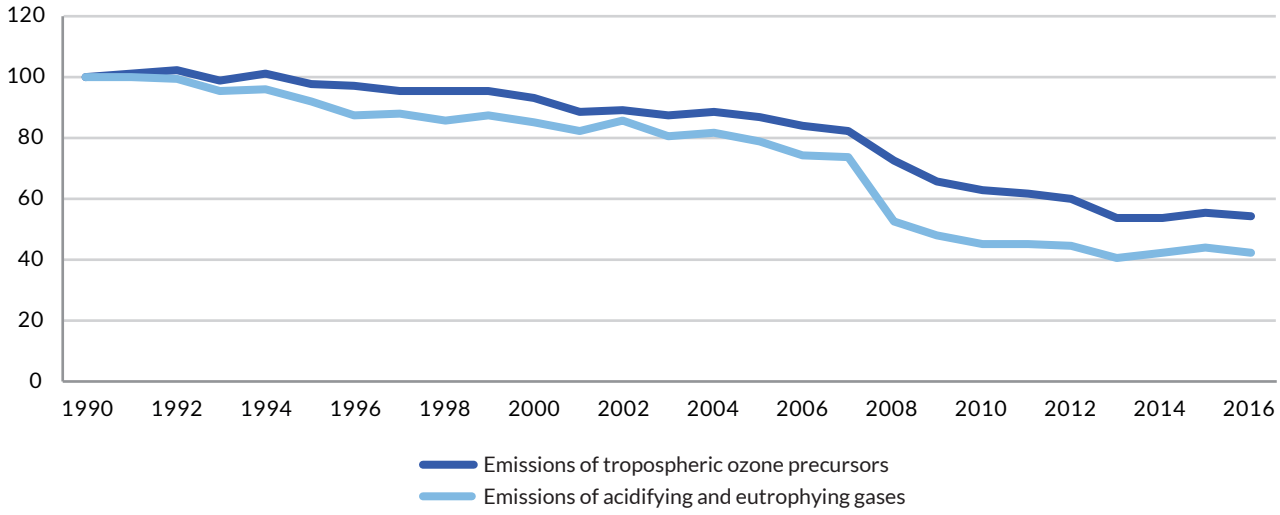
- EEA. EEA greenhouse gas — data viewer. At Home / Data and maps / Datasets / Interactive data viewers / EEA greenhouse gas — data viewer.
- Ministry for Ecological Transition, 2018. *Inventario Nacional de Emisiones de Gases de Efecto Invernadero* (National Inventory of Greenhouse Gas Emissions) 1990–2016. 2018 edition. Summary report. Submitted to the Secretariat of the United Nations Framework Convention on Climate Change. Reporting data tables (Common Reporting Format).

Recommended websites:

- https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/
- https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/documentoresumeninventariogei_tcm30-444543.pdf
- EEA. EEA greenhouse gas — data viewer. At Home / Data and maps / Datasets / Interactive data viewers / EEA greenhouse gas — data viewer.
- http://ec.europa.eu/clima/policies

Tropospheric ozone precursor and **acidifying and eutrophying gas** emissions

Tropospheric ozone precursor and acidifying and eutrophying gas emissions
Index: 1990=100



Source: MITECO

- ***In 2016, aggregate acidifying and eutrophying emissions decreased by 4 %, whereas those of ozone precursors increased by 1.8 %***
- ***Between 1990 and 2016, acidifying and eutrophying emissions fell by 57.5 % and those of ozone precursors dropped by 45.8 %***
- ***NO_x, NMVOC and SO_x emissions have remained below the maximum permissible limits since 2010. Only NH_3 emissions (39 %) exceeded their ceiling in 2016***

In 2016, there was a significant 4 % reduction in overall acidifying and eutrophying emissions following two consecutive years of growth. As a result, emissions stood at 42.5 % of the 1990 level. The situation was repeated with ozone precursor emissions, which dropped by 1.8 % to a near-historic minimum (achieved in 2013), with emissions at approximately half the level of 1990.

Emissions of acidifying substances have decreased significantly since 2015: SO_2 fell by 17.1 % (a reduction of almost 90 % since 1990) and NO_x dropped by 4.2 % (a 43 % reduction on 1990). Emissions of NH_3 remained practically unchanged year on year and the reduction on the 1990 level was likewise minimal.

Tropospheric ozone precursors did not behave homogeneously; the 4.2 % reduction in NO_x contrasts with the 1.8 % increase in NMVOCs, while CH_4 and CO showed only minimal changes from the previous year.

The good hydrological year made it possible to generate more hydropower (up 25.5 %), meaning that less coal was burned (down 29 %) and, therefore, less NO_x and, especially, SO_x were emitted, as mentioned above.

NH_3 emissions have been practically stable since 2015. They have fallen by just 2.2 % since 1990 as these emissions come almost entirely from agriculture, which has not undergone major transformation.

The housing, industrial and waste management sectors produce most of the CO emissions, which fell slightly year on year and have now decreased by 63 % since 1990. With regard to methane emissions, these remain virtually unchanged from the previous year.

The limits laid down in the National Emission Ceilings Directive derive from Directive 2016/2284/EC on national emission ceilings for certain atmospheric pollutants and from the Gothenburg Protocol to the Geneva Convention on Long-Range Transboundary Air Pollution and have been mandatory since 2010. NO_x, NMVOC and SO_x emissions have remained below the maximum permissible limits since 2010, standing at 90 %, 90 % and 29 %, respectively, in 2016. With regard to ammonia emissions (NH_3), these have exceeded the ceiling set in every year of the period under review. In 2017, adjustment of the ammonia emissions ceiling was requested in order to assess compliance better. This, however, was rejected by the European Commission, which could lead to the initiation of a non-compliance procedure. In 2016, the level was 39 % above the ceiling.

Definition of the indicator:

The indicator shows the emission indexes for the main gases responsible for acidifying and eutrophying the environment (SO_2, NO_x and NH_3) and for producing tropospheric ozone precursors (NO_x, NMVOCs, CO and CH_4). These are aggregated using weighting factors and take 1990 as the baseline year (1990=100).

Methodological notes:

- Emissions of acidifying and eutrophying gases are presented as their acid equivalents (hydrogen-generating potential). The weighting factors used are as follows: 31.25 acid equivalent/kg for SO_2 (2/64 acid equivalent/g), 21.74 acid equivalent/kg for NO_x, expressed as NO_2, (1/46 acid equivalent/g) and 58.82 acid equivalent/kg for NH_3 (1/17 acid equivalent/g). Emissions of tropospheric ozone precursors were estimated using the tropospheric ozone depleting potential (expressed as NMVOC equivalent). The following weighting factors were employed: 1.22 for NO_x, 1.00 for NMVOCs, 0.11 for CO and 0.014 for CH_4.
- Directive 2016/2284/EU of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC, sets out Member States' reduction commitments for anthropogenic emissions of SO_2, NO_x, NMVOCs, NH_3 and fine particulate matter (PM2.5). In addition, this Directive mandates the drafting, adoption and implementation of national programmes to control air pollution and monitor emissions and their effects, as well as those of other pollutants, and to report on those actions.
- The emissions used in calculating the indicator have been aligned with those reported to the European Monitoring and Evaluation Programme (EMEP), but include the emissions made in the Canary Islands and those originating from anthropic forest fires.
- The differences between the series used in this edition of the Environmental Profile and those used in previous years are mainly due to internationally agreed changes in the emission factors employed for each pollutant and to the methodological adjustments that modify the activities included in the various emission source and sink categories.

Source:

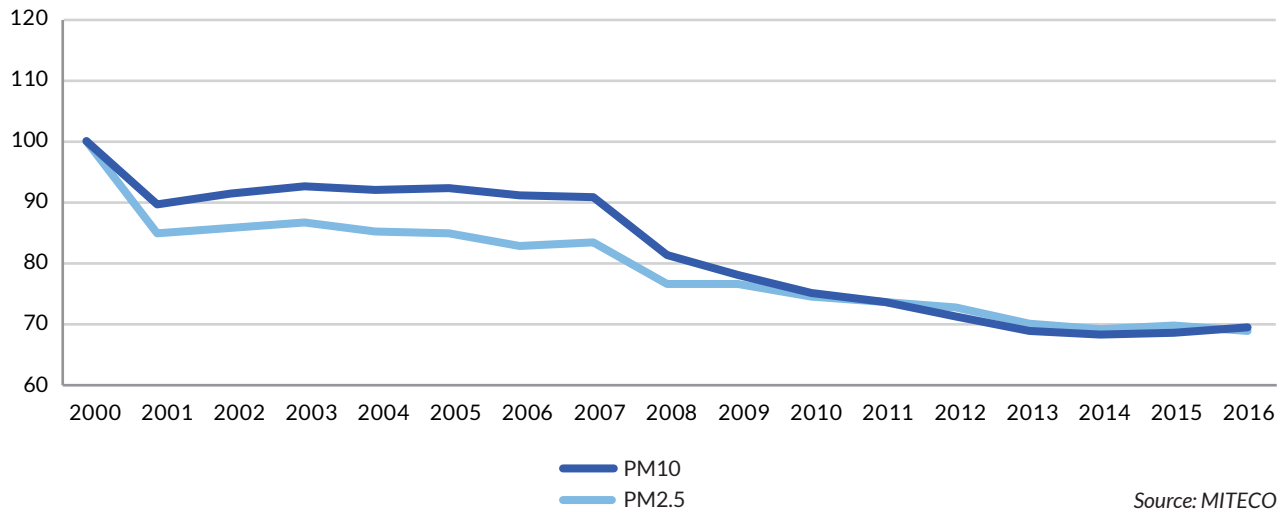
Ministry for Ecological Transition, 2018. National Air Emissions Inventory. Air pollutant emissions. 1990–2016 dataset. Directorate-General for Biodiversity and Environmental Quality.

Recommended websites:

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

Particulate matter emissions

Particulate matter emissions: PM10 and PM2.5 (2000=100)



Source: MITECO

- ***Particulate matter emissions have remained practically stable since 2013 and the level did not vary significantly year on year***
- ***Spain has lowered its PM2.5 emissions by 31 % since 2000, achieving a reduction above the EU-28 average (26 % decrease)***

Emissions of particulate matter with a diameter of less than 2.5 µm (hereafter PM2.5) continued the downward trend that, in general, has been maintained since 2000. Emissions fell by 1.3 % year on year to produce an overall reduction over the period of approximately 31 %.

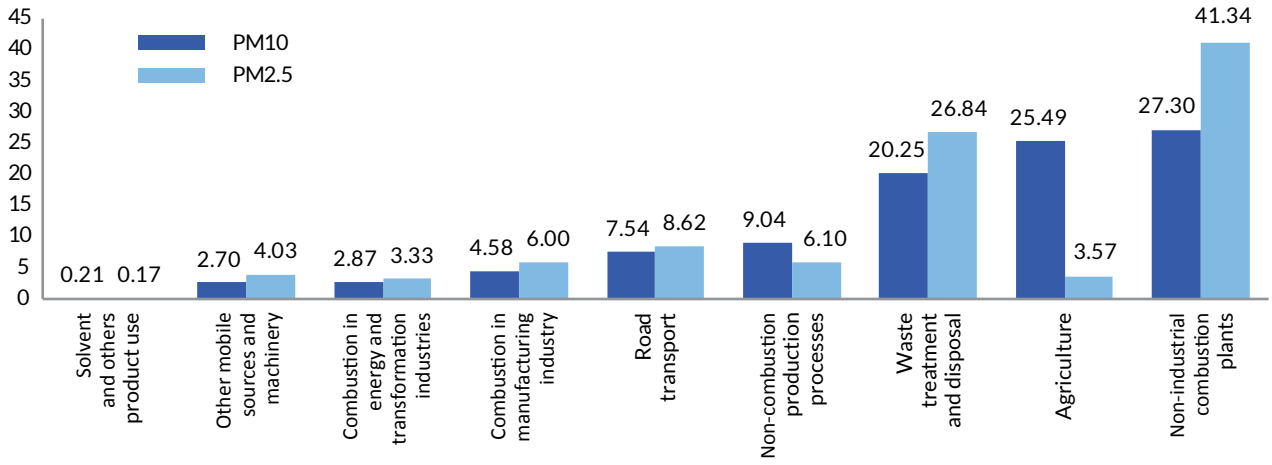
The general situation for particulate matter with a diameter of less than 10 µm (hereafter PM10) is similar, recording a 30.6 % decrease over the same period, although with a slight 1.4 % upturn in 2016.

Particulate matter emissions have dropped significantly since 2007. However, in recent years, this downward trend has slowed. Four-fifths of these emissions are attributable to three sectors: non-industrial combustion plants, waste treatment and disposal, and road transport. The drop in emissions of particulate matter, especially PM2.5, is due to improvements in combustion plant and vehicle technology.

In 2016, PM10 emissions totalled 202.9 kt, up 1 % on the year before and leaving the percentage reduction since 2000 at 31 %. The sector that emitted most PM10 was that of non-industrial combustion plants. Of the ten sectors analysed, five emitted 90 % of the PM10. By rank order, these were non-industrial combustion plants, agriculture, waste treatment and disposal, industrial processes and road transport.

Over three-quarters of PM2.5 emissions stem from just three activities. Non-industrial combustion plants emitted most, accounting for 41.34 % of the total. They were followed by waste treatment and disposal with 26.84 % and road transport with 8.62 %. In absolute terms, the activity in which PM2.5 emissions fell most year on year was combustion in energy and transformation industries, which cut emissions by 1 440.2 tonnes, down 25 %. However, this activity's relative importance is minor, as its contribution makes up just 3.3 % of total emissions.

Breakdown of particulate matter emissions by sector (%) 2016



Source: MITECO

The data available at European level are from 2015. In that year, Spain contributed 9.7 % of total EU-28 emissions of PM2.5, occupying fourth place by volume emitted. As regards PM10, Spain accounted for 8.7 % of emissions, making it the fifth-biggest contributor after France, Germany, Holland and Italy.

Spain lowered its emissions of PM2.5 by 31 % between 2000 and 2015, a proportion above the EU-28 average of 26 % for the same period, and is on track to meet the Gothenburg Protocol targets.

Definition of the indicator:

The indicator shows emissions of primary particulate matter in suspension with an aerodynamic diameter of less than or equal to 10 and 2.5 µm, respectively (PM10 and PM2.5). It is expressed as an index (2000=100).

Methodological notes:

- Emissions calculations do not include emissions from international air or marine traffic (international bunkering), or those from other sources or sinks (natural environment).
- The commitment to reduce emissions of fine particulate matter (PM2.5) set out in Directive 2016/2284/EU, which takes 2005 as the baseline year, aims to achieve a 15 % decrease between 2020 and 2029 and a 50 % decrease after 2030. For road transport, the commitment is applied to emissions calculated according to the fuels sold.
- The presence of particulate matter in the atmosphere is one of the main causes of air pollution. Particulate matter is one of the pollutants most harmful to human health. Its origin can be primary (anthropically emitted directly into the air); associated with road traffic and various combustion and industrial processes; or natural (in the form of dust, soil and sea salt particles, spores and pollen). It can also be secondary when it is produced in the atmosphere as a result of chemical reactions between precursor gases (SO_2, NO_x, NH_4 and NMVOCs).

Source:

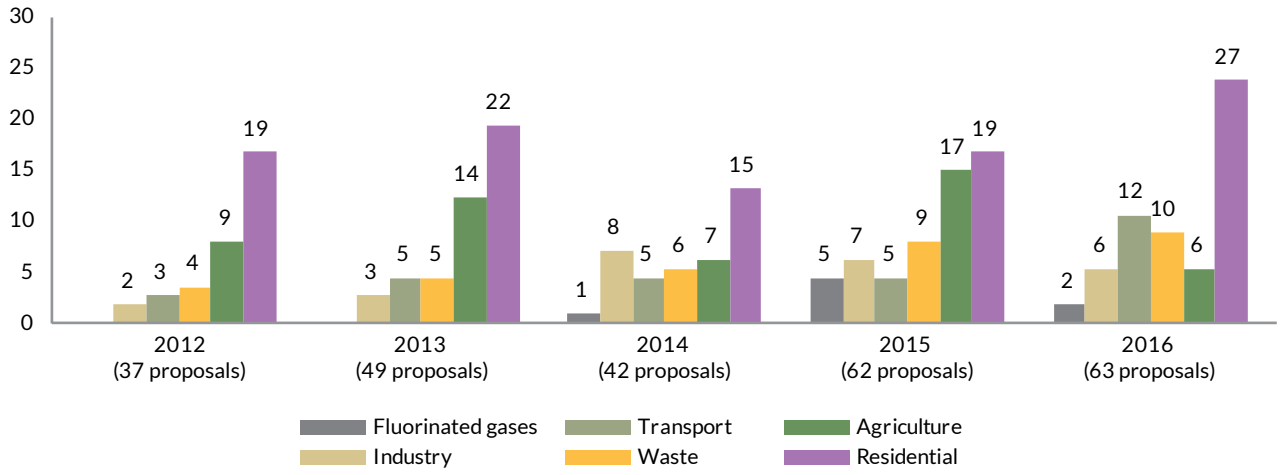
Ministry for Ecological Transition, 2018. 2017 Air Pollutant Inventory, 1990–2016 dataset (Informative Inventory Report, IIR). Directorate-General for Biodiversity and Environmental Quality. Data provided on prior request, according to SNAP nomenclature.

Recommended websites:

- http://www.miteco.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

Clima projects financed by the Carbon **Fund**

Breakdown of number of Clima projects selected by sector



Source: MITECO

- ***In 2017, 62 Clima projects and programmes were selected for financing under the Carbon Fund for a Sustainable Economy, a similar number to previous years***
- ***The highest number of proposals selected once again addressed the housing sector, while applications targeting the waste sector increased by 30 %***

The Carbon Fund for a Sustainable Economy (FES-CO_2), created by Article 91 of Law 2/2011 of 4 March 2001 on the sustainable economy, annually issues a call for proposals for Clima projects. These projects to reduce greenhouse gas emissions aim to develop model ways of generating economic activity while creating jobs in sectors relevant to the fight against climate change (i.e. diffuse sources of greenhouse gases).

Since the first calls for Clima project submissions in 2012, more than 300 emission-reduction projects have been financed, all of them embracing a green economy and a low-carbon society. With the aim of reducing emissions, the diffuse sectors (those not subject to the European emissions trading system) eligible for funding comprise transport, housing, waste, agriculture and livestock, industry not included in the emissions trading scheme, and fluorinated gases.

In 2017, 62 Clima projects and programmes were selected for financing under the Carbon Fund, a similar number to previous years. The highest number of proposals selected once again addressed the housing sector (40.3 % of the total), while applications targeting the waste sector (13 projects selected) increased by 30 % on the year before.

The proposals addressing the agriculture and fluorinated gases sectors numbered five in each case, and just one more targeted industry, meaning that between them those three accounted for just over 25 %.

In April 2018, the seventh call for Clima projects financed by the Carbon Fund for a Sustainable Economy was held to select projects in the diffuse sectors. One of the conditions was that the reductions in GHG emissions must not come from facilities already subject to the EU emissions trading system so as to avoid double counting.

Definition of the indicator:

This indicator shows the number of Clima projects selected by the Carbon Fund for a Sustainable Economy each year and their breakdown by sector. It shows data for all the calls held to date (2012, 2013, 2014, 2015, 2016 and 2017).

Methodological notes:

- The Clima projects selected by the Carbon Fund for a Sustainable Economy (FES-CO_2) are carried out in Spain and aim to reduce greenhouse gas emissions.
- Clima projects must be located in Spain and implemented in diffuse sectors (not subject to the European emissions trading scheme), such as transport, agriculture, housing, waste, etc. This scheme does not include projects involving removals of emissions by sinks.
- Reductions in emissions under the FES-CO_2 require fulfilment of a series of requisites, among them those laid down in Article 7 of Royal Decree 1494/2011 of 24 October 2011 regulating the Carbon Fund for a Sustainable Economy.

Source:

Ministry for Ecological Transition, 2018. Website: MITECO / Cambio climático / Proyectos Clima / Convocatorias y proyectos seleccionados [in Spanish].

Recommended websites:

- http://www.miteco.gob.es/es/cambio-climatico/temas/proyectos-clima/

2.4 WATER

In 2018, to mark the 25th anniversary of World Water Day (held on 22 March each year) a specific slogan —Nature for Water— was chosen to focus attention on the water challenges facing humanity and the ways of working with nature to meet them. The purpose of this day is to draw attention to the importance of this resource.

Guaranteeing global access to drinking water by 2030 is part of Sustainable Development Goal 6, which also sets goals to protect the natural environment and reduce pollution. In Spain, water's seasonality and its quantitative limitations in some areas affect the country's social and economic development as well as its natural environment and ecosystems.

Spain has applied a variety of approaches to water policy over the years, among them tackling its scarcity and guaranteeing availability for consumption, irrigation, services and power generation as efficiently as possible. Under this, watershed planning, hydraulic infrastructure, waste water treatment and environmental considerations affecting water's associated ecosystems, to name a few, have been part of the political and governmental agendas. In addition, advances in water management are continuously being made. Promoting use of tap water, thus avoiding overuse of plastic bottles, and promoting water reuse in agriculture (with appropriate assurances) are two of the recent proposals pending debate.

This whole framework is accompanied by a multitude of challenges, many of them deriving from international commitments that need to be met within clearly defined timescales and parameters. Three of the as-yet unaddressed challenges set by the European Commission are the drafting and publication of flood risk management plans, the review and updating of various river basin plans and the treatment of urban waste water. Beyond the fulfilment of these requirements and full compliance with the Water Framework Directive, other commitments must be undertaken, such as designing a national water treatment, sewerage, efficiency, saving and reuse plan to ensure sustainable management based on the entire water cycle while bringing transparency to its management. Another major commitment is to move forward with the special drought plans to minimise the environmental, economic and social impact of droughts like the one suffered in 2017.

It is important to note that last year's report amended the water quality indicators that had been presented in previous editions, aligning them with the provisions of the Water Framework Directive so as to provide better analysis of the state of Spain's water bodies. In addition to the projections made in the second planning cycle (2015–2021), this year's report includes an assessment of the interim evaluation of the state of Spain's water bodies in 2017, as laid down in the recast text of the law on waters adopted by Royal Legislative Decree 1/2001 of 20 July 2001.

The analysis of the changes in water body status in Spain based on 2017 data should be understood as an indicative estimate of the progress made between revisions of the water plan and of the effectiveness of the measures being implemented to attain the environmental objectives. The data from the annual follow-up are not comparable with those from the follow-up performed, with all the data available, when drafting the revision of the plan. As a result of the follow-up work performed on the control networks in 2017, the competent water and river basin authorities have estimated the changes to the state of Spain's water bodies in the year since approval of the second-cycle water plans, as shown in the tables below.

This edition has not been able to include the indicator on water consumption per capita, prepared using information from the Encuesta sobre el Suministro y Saneamiento del Agua (Water Supply and Sewerage Survey) conducted by the INE (National Statistics Institute), the most recent data available for which date from 2014 and were published in October 2016. Although this survey was initially conducted annually, since 2016 it has become biennial and the next dataset will not foreseeably be available until the end of 2018.

Reservoir water levels

- At the end of 2017, total peninsular water reserves were below 40 % of reservoir capacity.
- The 2016/2017 hydrological year was characterised as 'markedly dry', leaving reservoirs holding water for consumption purposes at 34 % of capacity.

Organic pollution of rivers

- The percentage of sampling points recording lower biochemical oxygen demand (BOD5) increased, rising from over 85 % in 2015 to 88 % in 2016.
- Since 2010, the percentage of sampling points showing high concentrations of ammonium has remained below 8 %. This trend continued in 2016, when the figure fell to under 5 %.

Quality of inland bathing waters

- In 2017, the number of inland water sampling points stood at 259, representing 11.7 % of the total (including both inland and marine sampling points).
- In 2017, 48.3 % of the sampling points recorded excellent quality, 22.4 % good quality, 8.5 % sufficient quality and 10.4 % insufficient quality for bathing.
- In recent years there has been a decrease in the percentage of sampling points recording good or sufficient quality and an increase in those showing insufficient quality.

Nitrate pollution of groundwater

- In 2016, only six of the 17 river basin districts evaluated recorded nitrate concentrations below 50 mg/l in under 15 % of their measuring stations, while another six recorded nitrate concentrations greater than 50 mg/l in over 30 % of their stations.
- Five river basin districts recorded a decrease in the percentage of stations showing nitrate concentrations greater than 50 mg/l, while in eight districts the number of stations increased.

Water body status

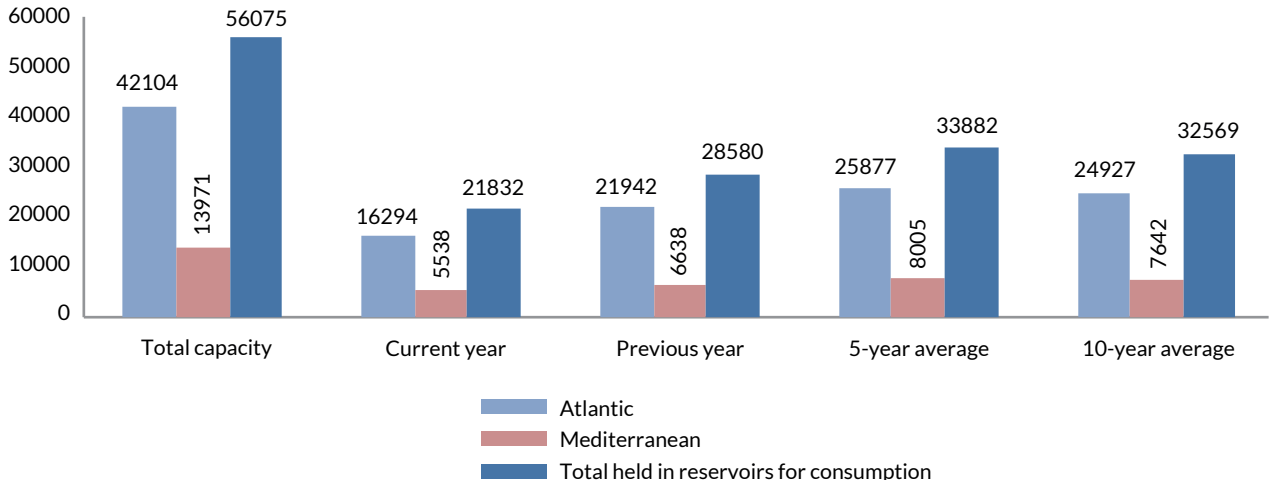
- The 2017 interim evaluation of the second planning cycle shows an increase in the proportion of surface water bodies awarded good status. Notably, 90 % of water bodies achieved good chemical status in 2017.
- The percentage of groundwater bodies awarded good chemical status increased in 2017, while those assessed as having good quantitative and overall status decreased.

Waste water treatment

- The biennial reports on waste water treatment in urban agglomerations with a population equivalent greater than 2 000 show the following for 2016:
  - 77.5 % of the population served met the provisions of Directive 91/271/EEC in relation to tertiary or more rigorous treatment.
  - Almost 87 % of the population served met the requirements for secondary or biological treatment.
  - Over 97 % of the population served was connected to urban waste water collection systems or to appropriate individual systems.

Reservoir **water levels**

Total reservoir water levels and water level by watershed (hm^3). Data as at 1 January 2018.



Source: MITECO

- ***At the end of 2017, total peninsular water reserves were below 40 % of reservoir capacity***
- ***The 2016/2017 hydrological year was characterised as 'markedly dry', leaving reservoirs holding water for consumption purposes at 34 % of capacity***

The *Informe de situación de la sequía hidrológica* (Drought Status Report) published by the Ministry for Ecological Transition on 12 December 2017 describes the 2016/2017 hydrological year as 'markedly dry'. With mean precipitation of 550 mm, it was the fourth consecutive year in a dry cycle that began in 2013/2014. In contrast, the 2012/2013 hydrological year was very wet (799 mm) and left reservoir water levels in a highly favourable position.

However, at the start of the 2016/2017 hydrological year (on 1 October 2016), water held in reservoirs for consumption stood at around 44 % of maximum capacity and the year was characterised by a significant shortage of rain in almost all of Spain. By the end of the hydrological year, total water held in reservoirs for consumption amounted to 34 % of maximum capacity.

By the end of 2017, total peninsular water reserves stood at less than 40 % of reservoir capacity. This situation occurred in both Spain's watersheds (Atlantic and Mediterranean). The reserves available in 2017 were lower than the previous year and were also below the last five- and ten-year averages.

This scenario slowly changed as 2018 progressed. Although the 2017/2018 hydrological year began unfavourably in terms of hydrological drought, especially in some river basin districts (particularly several inter-region ones like the Duero, Segura and Miño-Sil basins), the situation improved following intense rainfall in the spring. Thus, on 19 March 2018, water reserves stood at 72 % of total reservoir capacity.

Percentage of total reservoir capacity in each watershed
Provisional data from the week of 25 December 2017 to 1 January 2018

Watershed	Hm^3	Current year	Previous year	5-year average	10-year average
Atlantic	42 104	38.7	52.1	61.5	59.2
Mediterranean	13 971	39.6	47.5	57.3	54.7
Total held in reservoirs for consumption	56 075	38.9	51.0	60.4	58.1

Percentage of total reservoir capacity in each watershed
Provisional data from the week of 12 March 2018 to 19 March 2018

Watershed	Hm^3	Current year	Previous year	5-year average	10-year average
Atlantic	42 104	72.6	52.0	72.7	70.1
Mediterranean	13 971	69.9	57.6	68.3	67.4
Total held in reservoirs for consumption	56 075	71.9	53.4	71.6	69.5

Source: MITECO

Definition of the indicator:

- The indicator shows the water levels in peninsular reservoirs at the end of 2017. It provides information on the overall situation and by watershed (Mediterranean and Atlantic).
- The hydrological year runs from 1 October to 30 September of the following year.
- The Hydrological Bulletin is published weekly by the Hydrological Information Department, which receives the data collected by the river basin authorities and inter-region water authorities, the AEMET (State Meteorological Agency) and REE (Spain's electricity grid operator) and processes it to support national water-management decision-making, with all the accompanying technical, economic and social implications.

Sources:

Ministry for Ecological Transition, 2018. Hydrological Bulletin published by the Directorate-General for Water. Weekly Hydrological Bulletin (No 1, 2018). Week from 25 December 2017 to 1 January 2018 (original data subject to revision) Taken from the website: MITECO / Áreas de Actividad / Agua / Evaluación de los recursos hídricos / Boletín hidrológico [in Spanish].

Further information:

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

Nitrate pollution of groundwater

Percentage of stations with nitrate concentrations over 50 mg/l

River basin district	2012	2013	2014	2015	2016
Miño-Sil	0.0	0.0	0.0	0.0	3.1
Galicia-Coast	3.1	0.0	1.5	0.0	0.0
Bay of Biscay (east)	0.0	0.0	0.0	0.0	0.0
Bay of Biscay (west)	0.0	0.0	0.0	0.0	0.0
Douro	16.2	15.8	13.2	14.6	20.4
Tagus	16.9	33.3	10.6	11.40	12.3
Guadiana	31.6	38.1	30.8	27.0	31.0
Guadalquivir			26.7	25.9	26.6
Andalusian Mediterranean basins	8.7	13.3	12.8	12.6	12.2
Guadalete and Barbate	26.6	31.1	29.8	26.5	25.3
Tinto, Odiel and Piedras	19.1	34.2	38.9	40.0	37.4
Segura	21.7	23.2	18.8	23.2	30.0
Júcar	23.0	44.2	35.7	36.1	44.3
Ebro	19.4	21.8	23.2	27.0	19.8
Catalonian inland basins	43.6	33.6	38.7	33.5	31.5
Balearic Islands	29.4	30.1	28.1	29.6	36.3
Melilla			100.0	66.7	

Source: MITECO

- ***In 2016, only six of the 17 river basin districts evaluated recorded nitrate concentrations below 50 mg/l in under 15 % of their measuring stations, while another six recorded nitrate concentrations greater than 50 mg/l in over 30 % of their stations***
- ***Five river basin districts recorded a decrease in the percentage of stations showing nitrate concentrations greater than 50 mg/l while in eight districts the number of stations increased***

Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources (Nitrates Directive) requires, among other things, the control of nitrate concentrations in water and the designation of vulnerable areas. Spain's chemical status monitoring and control network meets the requirements of the Water Framework Directive both in terms of the number of sampling points (around 4 500) and the number of variables measured at each point. It fulfils the requirements of two basic control schemes: surveillance monitoring and operational monitoring. The table shows the percentage of sampling points recording nitrate concentrations above an estimated 50 mg/l in each of the river basin districts. The differences in these percentages over the four years shown can be considered indicative of a trend, influenced in each case by the number of stations that form part of the network in each district. Of the 16 river basin districts for which data were available in 2016, in six of them under 15 % of the stations recorded nitrate concentrations

below 50 mg/l, in four between 15 % and 30 % of the stations registered more than 50 mg/l of nitrates and in six districts over 30 % of the stations reported nitrate concentrations in excess of the 50 mg/l threshold. In relation to the previous year, the data show that in five districts the number of stations recording mean nitrate values above 50 mg/l fell, with the seven-percentage-point decrease in the Ebro basin being particular noteworthy. In contrast, recordings in stations increased in eight districts, among which the Júcar basin's eight-percentage-point rise stood out especially.

Definition of the indicator:

- The indicator shows the percentage of sampling points recording nitrate concentrations above 50 mg/l in each of the river basin districts for 2012–2016.
- Directive 91/676/EEC lays down the criteria and procedures for evaluation of chemical status based on nitrate concentration, both for surface and groundwater, as well as the possible measures to be taken to reduce the pollutants that affect those waters. In particular, in order to assess chemical status it sets a series of quality standards for nitrates, establishing the maximum allowable concentration at 50 mg/l.

Sources:

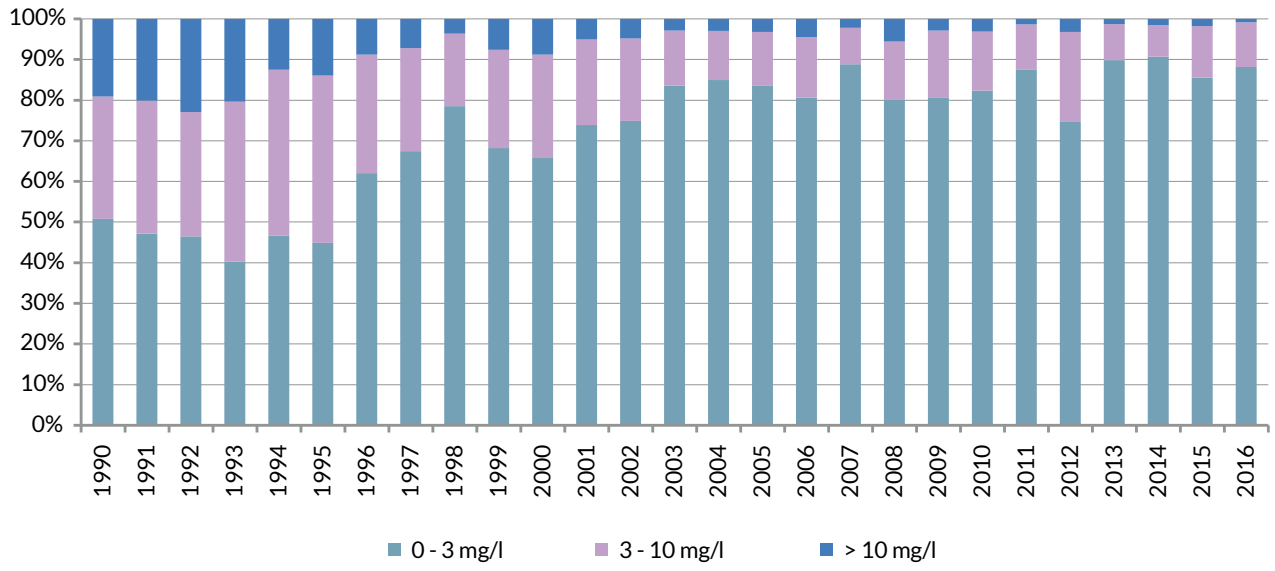
Data provided by the Subdirectorate-General for Integrated Public Water Resource Management. Directorate-General for Water. Ministry for Ecological Transition.

Further information:

- https://www.miteco.gob.es/es/agua/temas/estado-y-calidad-de-las-aguas/
- https://www.miteco.gob.es/es/agua/temas/evaluacion-de-los-recursos-hidricos/
- http://sig.miteco.es/recursossub

Organic pollution of rivers

Percentage of stations by mean BOD5 value

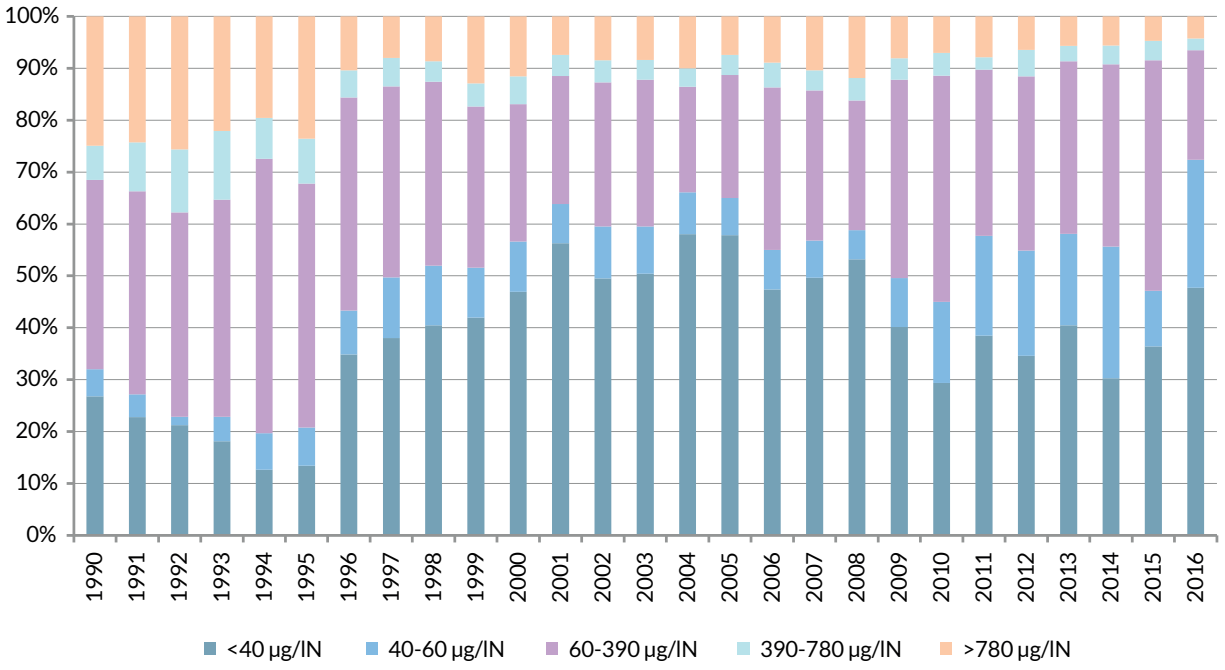


Source: MITECO

- *The percentage of sampling points recording lower biochemical oxygen demand (BOD5) increased, rising from over 85 % in 2015 to 88 % in 2016*
- *Since 2010, the percentage of sampling points showing high concentrations of ammonium has remained below 8 %. This trend continued in 2016, when the figure fell to under 5 %*

Although it varies from year to year, the long-term trend in BOD5 shows an increase in the percentage of sampling points recording lower concentrations and a reduction in those showing higher concentrations. As can be seen in the graph, the improvement is most evident since 2003. And, for example, since 2013, the percentage of stations recording mean BOD5 values in excess of 10 mg/l is below 2 %, a figure that fell to less than 1 % in 2016. Another important aspect is the existence of a sampling network that is generally expanding (though the number of stations may from year to year), as this results in mean values that are increasingly representative of the actual situation. In the case of 2016, BOD5 was analysed at over 2 000 sampling points.

Percentage of stations by mean ammonium value



Source: MITECO

The trend in mean concentrations of ammonium is more irregular. The graph shows an initial period (1990–1995) in which the percentage of sampling points recording low concentrations was likewise low. This is followed by an intermediate period (1996–2009) in which the percentage of sampling points showing low concentrations increased. Finally, in the third period (2010–2016) the percentage of stations recording better concentrations fell again, although not to the initial levels. In recent years, moreover, the proportion of sampling points showing high ammonium concentrations stayed below 8 %, with 2016 maintaining the downward trend and remaining below 5 %.

Definition of the indicator:

- This indicator shows the percentage of monitoring stations in which the mean BOD5 value falls within the following three ranges: 0–3 mgO_2/l, 3–10 mgO_2/l and >10 mgO_2/l. The indicator also shows the percentage of monitoring stations in which the mean ammonium value falls within the following ranges: <40 µg/l N, 40–60 µg/l N, 60–390 µg/l N, 390–780 µg/l N and >780 µg/l N.
- BOD is the quantity of oxygen dissolved in water needed for aerobic bacteria to oxidise all the biodegradable organic matter present in that water. BOD5 values above 10 mgO_2/l are typical of highly polluted waters, whereas values below 3 mgO_2/l indicate very low levels of organic pollution.
- The ammonium ion ($NH4^+$) is the ionised form of ammonia (NH_3). The ammonia present in the environment comes from metabolic, farming and industrial processes, as well as from disinfection with chloramine. Ammonium, along with nitrates, constitutes one of the main sources of nitrogen input in water, making it a cause of increased eutrophication. It mainly originates from sewerage and water treatment networks.

Sources:

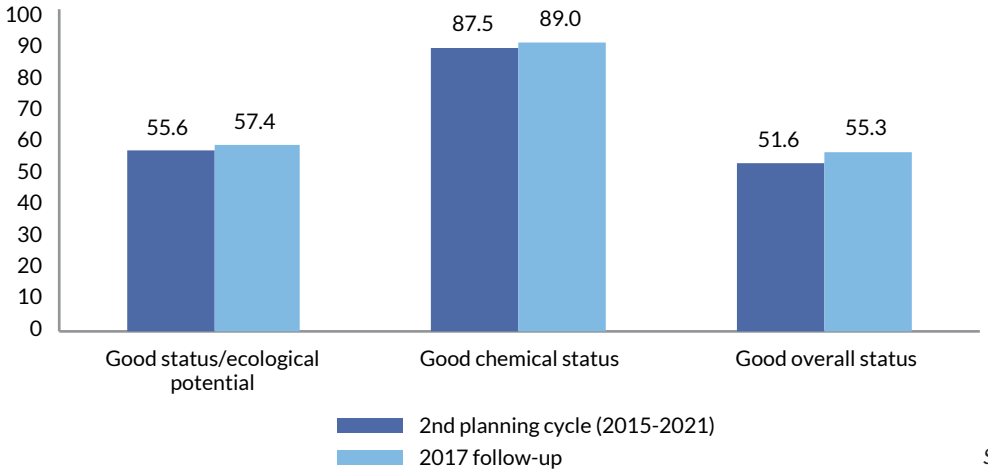
Data provided by the Subdirectorate-General for Integrated Public Water Resource Management. Directorate-General for Water. Ministry for Ecological Transition.

Further information:

- https://www.miteco.gob.es/es/agua/temas/estado-y-calidad-de-las-aguas

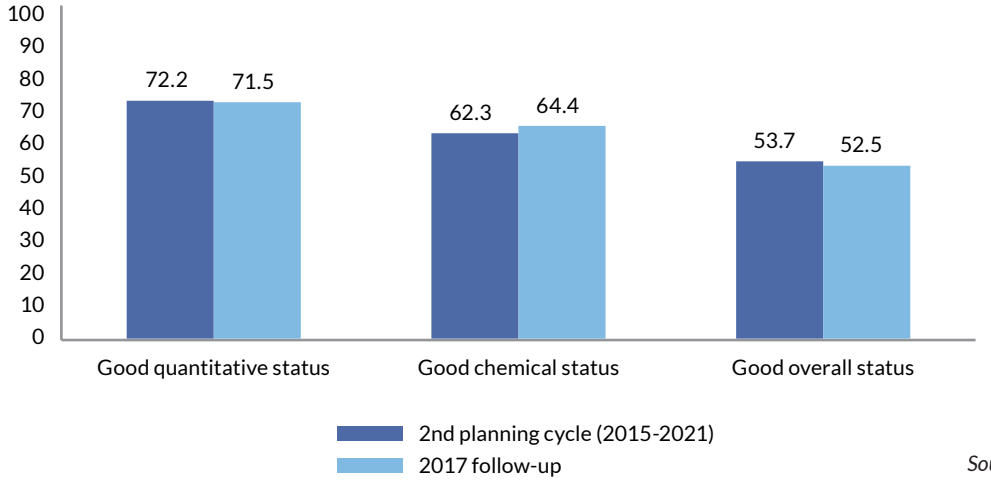
Water body status: interim evaluation of the second planning cycle (2017 follow-up)

Surface water bodies: percentage of total showing good status/potential



Source: MITECO

Groundwater bodies: percentage of total showing good status



Source: MITECO

- ***The 2017 interim evaluation of the second planning cycle shows an increase in the proportion of surface water bodies awarded good status. Notably, 90 % of water bodies achieved good chemical status in 2017***
- ***The percentage of groundwater bodies awarded good chemical status increased in 2017, while those assessed as having good quantitative and overall status decreased***

The interim evaluation carried out in 2017 on the status of Spain's surface and groundwater bodies makes it possible to compare that situation with the one projected in the second planning cycle (2015–2021), verify the situation as regards compliance with the targets set and assess the effectiveness of the measures being applied in river basin districts under the various water plans.

The situation as regards surface water bodies is summarised in the graph above. The analysis is based on a total of 5 162 water bodies. The assessment deriving from this interim evaluation can be summarised as follows:

As regards good status/ecological potential, the situation improved from 2 896 water bodies given this rating in the second planning cycle to 2 962 in 2017, a 3.2 % increase. There was also an increase, albeit a lesser one, in good chemical status, which rose by 1.8 % from 4 516 to 4 596 water bodies. The positive trend in the good overall status of these water bodies is thanks to a 7.1 % increase from the 2 666 water bodies projected in the second planning cycle to the 2 854 recorded in the 2017 evaluation.

The proportion of groundwater bodies showing good chemical status grew by 3.4 % (rising from 475 water bodies projected in the second planning cycle to an estimated 491 in the 2017 follow-up). However, there were decreases in both good quantitative status and good overall status, which shrank by 0.9 % and 2.2 % respectively.

Definition of the indicator:

The data are drawn from the 2017 interim evaluation of the second water planning cycle (2015–2021) in Spain, evaluating the good status/ecological potential and good chemical and overall status of surface water bodies and the good quantitative, chemical and overall status of groundwater bodies, expressed as the percentage of water bodies showing good status.

Methodological notes:

- Law 62/2003 on tax, administrative and social measures amends Royal Decree 1/2001 of 20 July 2001 adopting the recast text of the law on water and transposing the Water Framework Directive 2000/60/EC into Spanish law. This Directive sets out 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 for EU water bodies (surface and groundwater) by the end of 2015.
- In order to assess compliance with the environmental targets and status indicators, in the case of surface water bodies the indicators are defined in accordance with Royal Decree 117/2015 of 11 September 2015 laying down the criteria for monitoring and evaluating the status of surface water bodies and environmental quality standards. For groundwater bodies, the indicators and compliance values are defined in accordance with Royal Decree 1514/2009 of 2 October 2009 regulating the protection of groundwater against pollution and deterioration.
- Analysis of the changes in water body status in 2017 makes it possible to carry out interim evaluation of the actual situation (between revisions of the water plan) and of the effectiveness of the measures being implemented to attain the environmental objectives. The data from the annual follow-up are not comparable with those from the follow-up performed, with all the data available, when drafting the revision of the plan. The indicator shows the controls carried out in the monitoring networks during 2017 by the river basin authorities and competent water authorities.

Source:

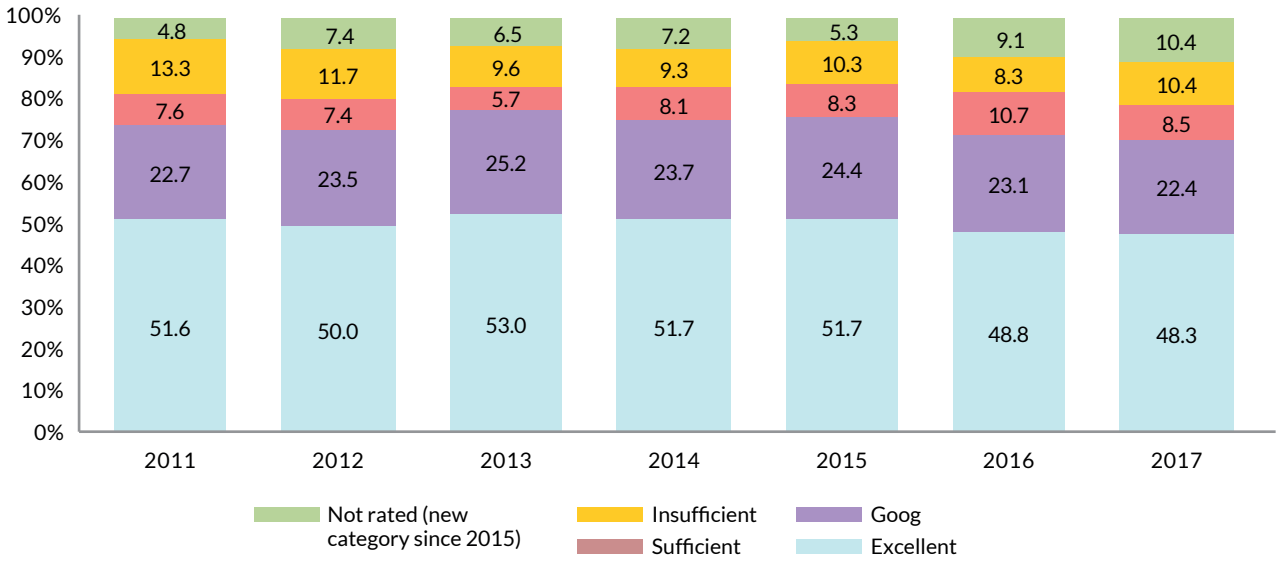
Data provided by the Directorate-General for Water at the Ministry for Ecological Transition. Official data compiled in the summary of the Spanish water plans, second cycle of the Water Framework Directive (2015–2021).

Recommended websites:

- https://www.miteco.gob.es/es/agua/temas/planificacion-hidrologica/marco-del-agua/default.aspx
- http://ec.europa.eu/environment/water/water-framework/pdf/4th_report/MS%20annex%20-%20Spain_es.pdf
- https://www.miteco.gob.es/es/agua/publicaciones/Documentos_Guia_EstrategiaComunImplantacion.aspx

Quality of **inland bathing waters**

Quality of inland bathing waters
Percentage of sampling points by category



Source: MITECO

- *In 2017, the number of inland water sampling points stood at 259, representing 11.7 % of the total (including both inland and marine sampling points)*
- *In 2017, 48.3 % of the sampling points recorded excellent quality, 22.4 % good quality, 8.5 % sufficient quality and 10.4 % insufficient quality for bathing*
- *In recent years there has been a decrease in the percentage of sampling points recording good or sufficient quality and an increase in those showing insufficient quality*

The official census of bathing waters for the 2017 season was taken in March by Spain's various regional governments. Of the current 2 219 sampling points, 259 (11.7 %) were in inland waters. Of those, 70 were in Galicia, 40 in Castile-La Mancha, 35 in Castile and Leon and 30 in Extremadura. The autonomous communities with fewest sampling points were Rioja (just 1), the Basque Country and Madrid (5 each) and Valencia (8 sampling points).

The mean length of the inland water bathing season is 86 days. Madrid was the autonomous community that set the longest bathing season at 124 days, while Navarre set the shortest at just 49 days. Most of the autonomous communities had only one season, except the communities of Andalusia, Galicia and Navarre, which had two seasons a year.

According to the classification of inland waters by quality, it was noteworthy in 2017 that 48.3 % of the sampling points showed excellent quality (125 points), 22.4 % good quality (58 points) and 8.5 % sufficient quality for bathing (22 points), while 10.4 % (27 points) recorded insufficient quality, the same percentage as the points that were left unrated.

The autonomous community with the highest number of waters rated as excellent or good quality was Galicia (with 36 rated as excellent quality for bathing and 20 rated as good quality), followed by Castile-La Mancha (20 and 8, respectively) and Castile and Leon (17 excellent bathing waters and 5 good ones).

In short, there was a decrease in the percentage of sampling points recording excellent, good or sufficient quality and an increase in those showing insufficient quality. There was also a rise in the number of points that were not rated because it was not possible to take the minimum number of samples required by national legislation.

In relation to the incidents reported, in 2017 there were 9 cases of short-term pollution (7.4 % of the total) lasting an average of 2.2 days. There were also 23 incidents categorised as being due to exceptional circumstances (40.4 % of the total) lasting an average of 9 days; and 4 incidents due to anomalous situations (33.3 % of the total) lasting an average of 32.5 days.

At EU level, 6 574 sampling points were selected to evaluate the status of rivers and lakes in 2017. Of that number, Spanish inland waters accounted for 3.9 %.

Overall, 94.1 % of Europe's inland bathing waters received a quality rating of sufficient or higher and 82.1 % received a rating of excellent. Both percentages mean that Spain's values are below the EU average.

Definition of the indicator:

The indicator shows the percentages of the total number of inland bathing water sampling points broken down by the five quality standards set by the legislation ('Insufficient', 'Sufficient', 'Good', 'Excellent' and 'Not rated').

Methodological notes:

The report on bathing water quality in Spain is prepared each year by the Ministry of Health, Consumer Affairs and Social Well-Being. Each point is rated according to the four categories defined in current legislation. There is also a 'Not rated' category for sampling points at which the minimum number of samples required by national legislation was not taken. This report is the basis of the Spanish contribution to the Europe-wide report drawn up by the European Commission.

Source:

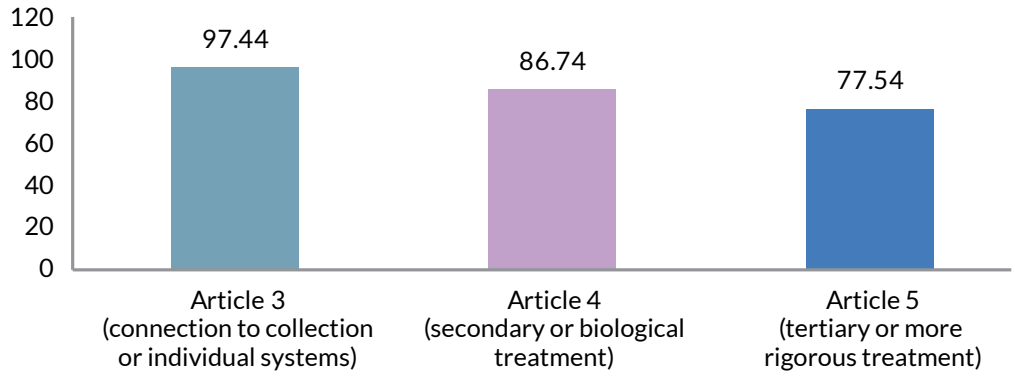
Ministry of Health, Consumer Affairs and Social Well-Being, 2018. Quality of Bathing Waters in Spain. Technical Report. 2017 Season.

Recommended websites:

- http://www.mscbs.gob.es/profesionales/saludPublica/saludAmbLaboral/calidadAguas/aguasBanno/publicaciones.htm

Waste water **treatment**

Degree of compliance with the Urban Waste Water Treatment Directive 2016 (% p.e.)



Provisional data pending verification by the European Commission.
The 2016 data come from the Q2017 questionnaire.
Source: MITECO

- ***The biennial reports on waste water treatment in urban agglomerations with a population equivalent greater than 2 000 show the following for 2016:***
  - ***77.5 % of the population served met the provisions of Directive 91/271/EEC in relation to tertiary or more rigorous treatment***
  - ***Almost 87 % of the population served met the requirements for secondary or biological treatment***
  - ***Over 97 % of the population served was connected to urban waste water collection systems or to appropriate individual systems***

Directive 91/271/EEC concerning urban waste-water treatment in the EU requires all Member States to prepare a biennial report on the degree of compliance with waste water treatment in urban agglomerations with a population equivalent greater than 2 000. The last of these reports (Q2017) describes the situation at December 2016 (with provisional data pending verification by the European Commission). That year, 97.4 % of the population equivalent met the requirements for the collection of waste water, either via connection to an urban waste-water collection system or via appropriate individual systems, as described in Article 3 of that directive.

With regard to secondary or biological treatment of waste water, 2017 showed an improvement over 2015, with 86.7 % of the population equivalent being in compliance with the provisions of the Directive.

Compliance with Articles 3, 4 and 5 of the Urban Waste Water Treatment Directive (population equivalent)

Year	Article 3 Connection to collection or individual systems		Article 4 Secondary or biological treatment		Article 5 Tertiary or more rigorous treatment	
	Compliant	Non-compliant	Compliant	Non-compliant	Compliant	Non-compliant
2014	59 953 524	1 906 504	50 534 090	9 521 397	14 880 818	7 390 184
2016 *	74 718 296	1 966 131	66 036 074	10 762 094	19 673 025	5 697 195

* 2016 data pending verification by the European Commission.
Note: The target population for each article is different, depending on the size of the agglomeration and the characteristics of the waste collection area

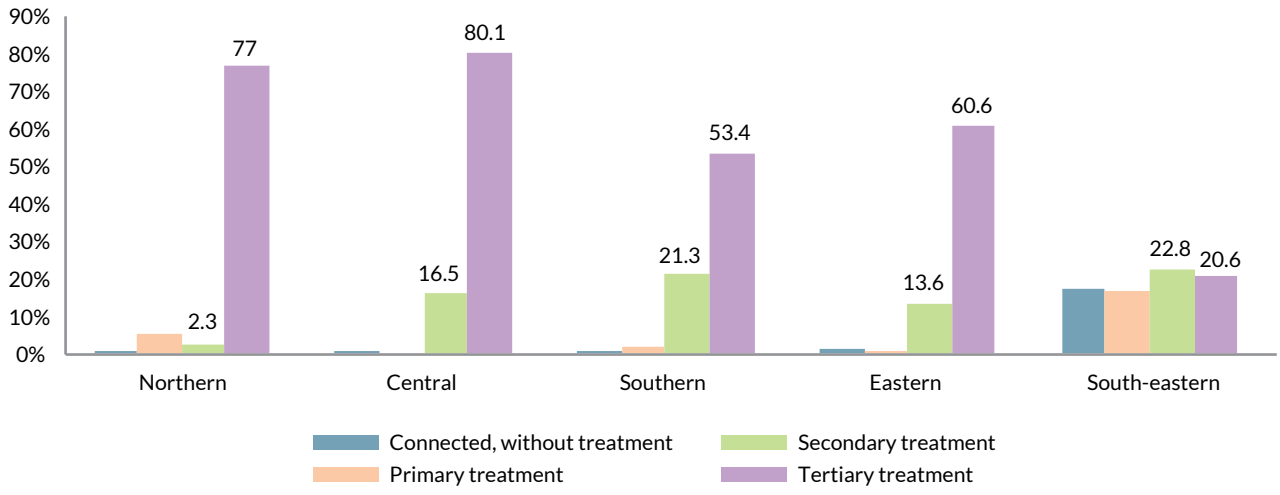
Source: MITECO

More significant is the improvement in the population equivalent complying with the Directive's provisions for tertiary or more rigorous treatment, since there was a significant increase to 77.5 % of the population equivalent.

The article published by the European Environment Agency in 2018 on the occasion of World Water Day (titled 'World Water Day: Turning to nature for solutions', available at https://www.eea.europa.eu/highlights/world-water-day-turning-to) highlights progress made in Europe in recent decades in reducing waste water pollution. It also sets out differences in the progress made in the countries of northern, central, southern and eastern Europe, as shown in the graph.

With reference to 2014 (based on information taken from Q2015), the percentage of the population connected to urban waste water networks in the countries of southern Europe varied between 30 % and 99 %, with Greece, Malta and Spain all reporting rates above 90 %. In Greece, tertiary treatment covered 89 % of the population. It was followed by Spain and France, which reported over 66 % of their urban waste water receiving this high level of treatment.

Percentage of population connected to waste water treatment systems, by European region. 2014



2014 information taken from Q2015.
Source: EEA

Definition of the indicator:

- The degree of compliance of urban waste water treatment with the provisions of Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment, and subsequent amendments is expressed as a percentage of population equivalent. It specifies the situation in relation to Articles 3 (connection to collecting systems), 4 (secondary or biological treatment) and 5 (tertiary or more rigorous treatment).

Notes:

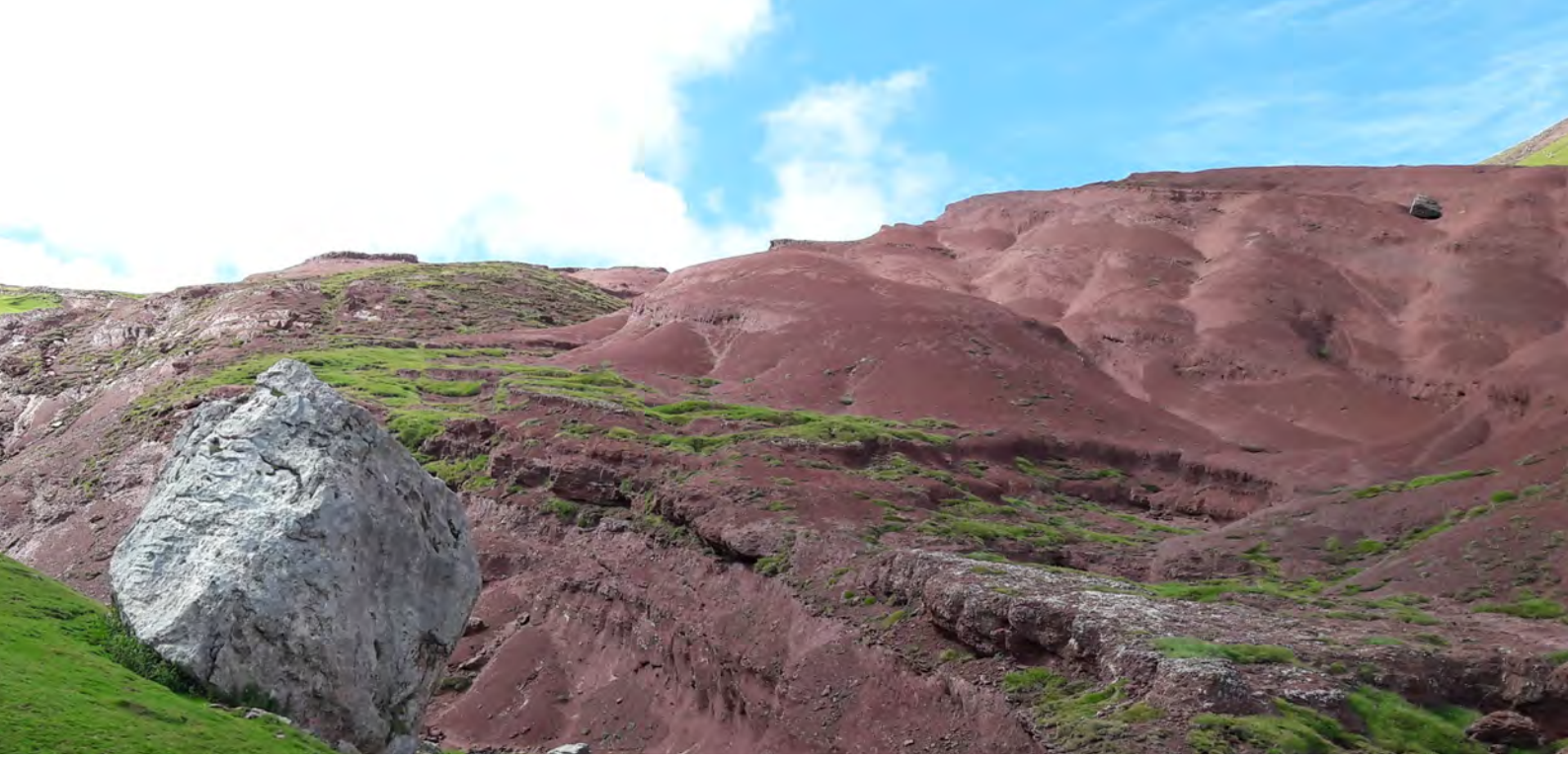
- Directive 91/271/EEC, amended by Directive 98/15/EC, defines urban waste-water collection, treatment and discharge. This Directive was transposed into Spanish law by Royal Decree-Law 11/1995, Royal Decree 509/1996 (which implemented it), and Royal Decree 2116/1998 (which amended the latter).
- Directive 91/271/EEC establishes two clearly differentiated obligations: firstly, urban agglomerations must provide, as applicable, systems for collecting and conducting waste water and, secondly, they must provide other treatments for this kind of waste before it is discharged into inland or marine waters.
- 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 where population density is sufficient to merit collecting and conducting waste water.

Source:

Data provided by the Directorate-General for Water from the biannual status reports on urban waste-water discharges. Ministry for Ecological Transition.

Recommended websites:

- Royal Decree 509/1996 of 15 March 1999 implementing Royal Decree-Law 11/1995 of 28 December 1995 setting out the rules applicable to urban waste-water treatment.
- http://eur-lex.europa.eu/legal-content/ES/TXT/?uri=uriserv%3Al28008
- Eighth Report on the Implementation Status and the Programmes for Implementation (as required by Article 17) of Council Directive 91/271/EEC concerning urban waste-water treatment.
- https://www.eea.europa.eu/data-and-maps/data/waterbase-uwwtd-urban-waste-water-treatment-directive-5
- https://www.eea.europa.eu/data-and-maps/indicators/urban-waste-water-treatment/urban-waste-water-treatment-assessment-4



2.5 SOIL

Soil is a non-renewable natural resource, which means that its loss and degradation are irreversible on a human scale. It forms a dynamic and vulnerable system that carries out a variety of key functions, such as biomass production, nutrient recycling and regulation of the hydrological cycle. As it is also the substrate for agriculture, preserving it is essential to ensuring food security. Nevertheless, it is not always given due consideration.

Initiatives that highlight the importance of soil include the Global Soil Organic Carbon Map, which was created by the Global Soil Partnership in 2017 and shows the carbon present in the first 30 centimetres of soil — almost double the carbon in the atmosphere.

Soil plays a key role in mitigating climate change by storing and reducing greenhouse gas emissions in the atmosphere, a fact that has been recognised in the Paris Agreement (COP 21: the United Nations Climate Change Conference). Spain has joined the '4 per thousand' initiative, which aims to increase the absorption capacity of agricultural soils by 0.4 % through encouraging certain management practices. Within the European Union, the recently adopted regulation on land use, land-use change and forestry (LULUCF) will enable Member States to achieve reductions in their greenhouse gas emissions by increasing soil absorption from activities related to land use and forestry. All these issues were addressed at the Global Symposium on Soil Pollution, which was held by the FAO in May 2018.

Projections for climate change in Spain point towards scenarios that will favour desertification (characterised by increasing aridity and rising temperatures). The 2016 report published by the Spanish Office for Climate Change titled *Impactos del Cambio Climático en los Procesos de Desertificación en España* (The Impact of Climate Change on Desertification in Spain) estimates that, as a consequence of expected changes in aridity, the risk of desertification will increase in a large part of the country (22 %), which will become arid, semi-arid or dry sub-humid.

A serious problem that threatens soil —and therefore the human activities it sustains— is contamination. In 2017, Spain modified the list of potentially soil-contaminating activities and the criteria used to identify them through Order PRA/1080/2017.

One of the European Union's main concerns regarding soil conservation is sealing. A recent study by the European Environment Agency (EEA) shows that the impermeable surface area of 39 European countries increased by 2 051 km^2 between 2009 and 2012, covering 2 % of the territory. Spain was ranked fifth by the EEA by size of increase, although the country's proportion of artificial land cover is among the lowest of all EU members.

Another major threat to soil in the Mediterranean area is the high recurrence of forest fires, as the destruction of vegetation leaves the soil unprotected against erosion. In 2017, forest fires were particularly frequent and burned more than 178 000 ha, a 94 % increase compared to the average for the last decade. The Ministry for Ecological Transition implements emergency hydrological and forestry measures on land affected by floods, severe storms or large fires that may pose an immediate risk of soil erosion or serious danger to communities and property.

Urban land take

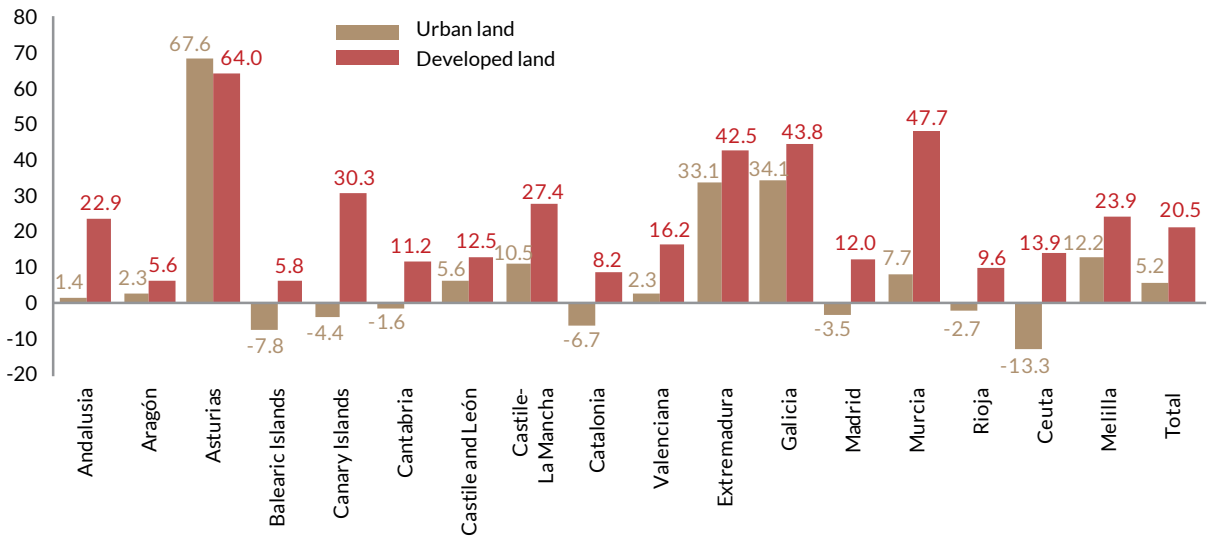
- Urban land area decreased by 5 % in 2017, covering 2 % of national territory and amounting to just over one million hectares.
- Between 2007 and 2017, urban land area increased in all the autonomous communities studied (with an overall increase of 5.2 %), while the developed land area as a whole increased by 20.5 %, although it did decrease in some autonomous communities.
- Asturias experienced the greatest increase in both urban and developed land area between 2007 and 2017.

Soil loss through erosion

- Almost 30 % of Spain's land area is subject to intermediate or high erosion rates.
- Average soil loss in Spain was 14.16 t/ha in 2017.
- The autonomous communities recording the greatest annual soil loss were Catalonia, Andalusia and Cantabria, which exceeded 21 t/ha/year. Castile and Leon had the lowest annual soil loss with less than 5 t/ha/year.

Urban land take

Changes in urban and developed land area between 2007 and 2017 (%)



Source: Directorate-General for Land Registration

- ***Urban land area decreased by 5 % in 2017, covering 2 % of national territory and amounting to just over one million hectares***
- ***Between 2007 and 2017, urban land area increased in all the autonomous communities studied (with an overall increase of 5.2 %), while developed land area as a whole increased by 20.5 %, although it did decrease in some autonomous communities***
- ***Asturias experienced the greatest increase in both urban and developed land area between 2007 and 2017***

In 2017, the total urban land area recorded in the land registry rose to 1 018 310 hectares. This figure corresponds to the national total, excluding the Basque Country and Navarre, which have independent land registry services. In relative terms, urban land accounts for 2 % of national territory, the highest shares being in Melilla (36.8 %), Ceuta (23.8 %) and Madrid (11.4 %). In contrast, Aragon and Extremadura are the autonomous communities where urban land makes up the smallest share of the territory (0.73 %).

Sixty-four per cent of urban land area is developed. The autonomous cities of Ceuta and Melilla show the highest percentages of developed land (83 % and 78 % respectively), followed by the Balearic Islands (74 %) and Cantabria (71 %). In contrast, in Murcia, Asturias and Galicia developed land covers less than 60 % of the territory.

In 2017, land areas classified as urban decreased by 5 % with respect to the previous year. This is the third consecutive year that a decrease in urban land has been observed, which seems to indicate a change in trend with respect to previous years. There was annual growth between 2007 and 2014, which peaked in 2013.

Furthermore, 2017 recorded the least growth in developed land over the last decade (with an increase of 0.3 %), and there were even decreases recorded in Murcia (-6 %), Extremadura (-2.7 %) and Catalonia (-0.7 %). In contrast, Melilla and Galicia showed respective increases of 4.6 % and 3.3 % compared to 2016.

The graph shows the changes in both urban land area and developed land area for each autonomous community between 2007 and 2017. Developed urban land area has increased in all the autonomous communities, with the largest growth occurring in Asturias (67 %), Murcia (47.7 %), Galicia (43.8 %) and Extremadura (42.5 %).

However, overall urban land area in Murcia (which includes both developed and undeveloped land) increased by only 7.7 %, and in seven autonomous communities this figure decreased, with the sharpest drops in Ceuta (-13.3 %) and the Balearic Islands (-7.8 %). The greatest changes in urban land take over the last decade were in Asturias (64 %), Galicia (34 %) and Extremadura (33 %).

Definition of the indicator:

The indicator shows the changes recorded in the Land Registry for total urban land area and developed land area in the last decade.

Methodological notes:

- 'Urban land' refers to land zoned as urban or developable, as well as to developed land and areas that are used for public services provided by population centres according to land-use legislation. This excludes land used for energy production, as well as land used for motorways, highways and airports, which is considered special-category land.
- Data for the Basque Country and Navarre are excluded from the scope of this indicator as they have their own land registry services.
- The Land Registry is an administrative register, overseen by the Ministry of Finance, in which rural, urban and special-category land is listed and described (Royal Legislative Decree 1/2004 adopting the recast text of the law on land registration).

Sources:

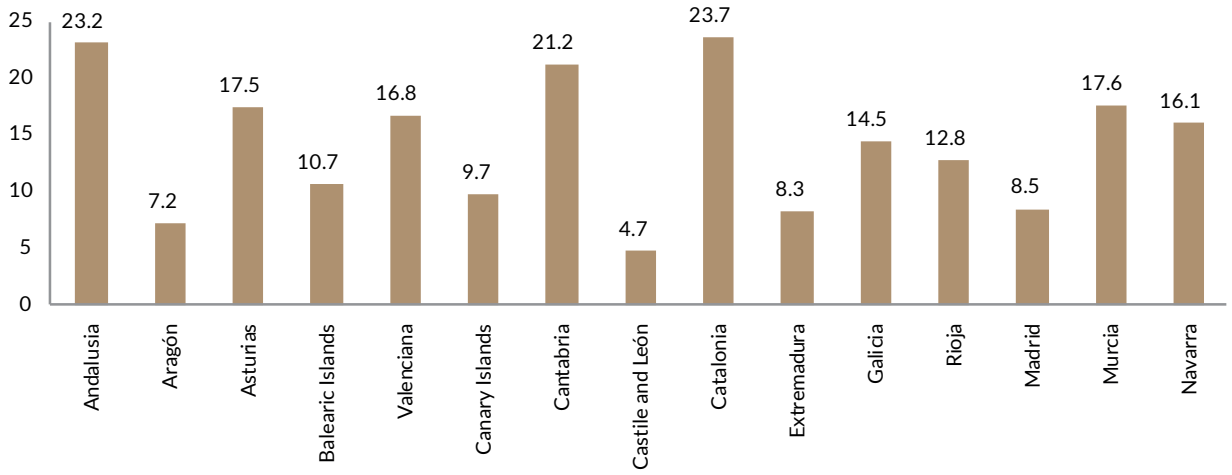
Directorate-General for Land Registration. Ministry of Finance. Estadísticas catastrales/Catastro /Anuales/Urbano/Año/Por CCAA/Superficie parcelas urbanas. http://www.catastro.meh.es/ [in Spanish].

Recommended websites:

- http://www.catastro.meh.es/documentos/estadisticas_metodologia_catastro_2015.pdf
- http://www.ine.es/inebaseweb/pdfDispacher.do?td=154090&L=0

Soil loss through erosion

Average annual soil loss (t/ha)



Source: MAPA.

- *Almost 30 % of Spanish land is subject to intermediate or high erosion rates*
- *Average soil loss in Spain was 14.16 t/ha in 2017*
- *The autonomous communities recording the greatest annual soil loss were Catalonia, Andalusia and Cantabria, which exceeded 21 t/ha/year. Castile and Leon had the lowest annual soil loss with less than 5 t/ha/year*

According to the most recent data from the INES (National Soil Erosion Inventory), which is a geographic information system providing homogenised data on erosion rates, almost 30 % of Spain's surface area is subject to intermediate or high erosion rates (soil losses of more than 10 tonnes per hectare annually). Castile-La Mancha and the Basque Country have not been included as their data are still being processed.

Annual soil loss through erosion in Spain is around 14.2 t/ha/year on average, though it varies by autonomous community. Those with the highest erosion rates are Catalonia, Andalusia and Cantabria, which have registered losses of over 21 t/ha/year.

Castile and Leon has the lowest registered annual soil loss through erosion with less than 5 t/ha/year. Aragon, Madrid, Extremadura and the Canary Islands have moderate average losses (less than 10 t/ha/year).

In terms of classifying soil according to its erosion rate, all Spain's autonomous communities are predominantly home to land subject to moderate erosion rates. In Andalusia and Catalonia, up to a fifth of the land exhibits a high erosion rate (greater than 25 t/ha/year). The following table indicates the percentage of land affected by erosion in the various autonomous communities.

Area affected by erosion (%). 2017

AC	Moderate rate of erosion (%)	Intermediate rate of erosion (%)	High rate of erosion (%)
Andalusia	57.61	19.76	22.63
Aragon	81.51	12.83	5.66
Asturias	61.92	21.67	16.42
Balearic Islands	76.62	13.69	9.7
Valencia	70.13	16.04	13.83
Canary Islands	69.25	21.86	8.89
Cantabria	59.91	22.39	17.7
Castile and Leon	89.13	7.77	3.1
Catalonia	54.41	24.86	20.74
Extremadura	83.75	9.81	6.44
Galicia	74.34	13.06	12.61
Rioja	65.84	20.43	13.72
Madrid	81.28	10.89	7.83
Murcia	66.41	18.13	15.46
Navarre	65.64	18.79	15.57

Source: MITECO

Definition of the indicator:

The indicator shows the annual soil loss due to sheet, rill and gully erosion calculated by the INES using the Revised Universal Soil Loss Equation (RUSLE) model. It is measured in t/ha with respect to the total geographical area of each autonomous community.

Methodological notes:

- The INES forms part of the IEPNB (Spanish Inventory of Natural Heritage and Biodiversity), to which it contributes forestry statistics.
- The INES is taken on a continual and cyclical basis every 10 years. It is currently being compiled and is awaiting data from Castile-La Mancha and the Basque Country.
- The INES's digital and alphanumerical cartographic information is provided at a scale of 1:50 000 and the minimum territorial working unit is the province.
- It is divided into five sections according to the various types of erosion: sheet and rill erosion, gully erosion, deep erosion, riverbed erosion and wind erosion.
- Sheet and rill erosion is a quantitative estimate of soil losses using the RUSLE model, which groups the results calculated into erosion levels:

  1) ≤5 t/ha/year
  2) >5 and ≤10 t/ha/year
  3) >10 and ≤25 t/ha/year
  4) >25 and ≤50 t/ha/year
  5) >50 and ≤100 t/ha/year
  6) >100 and ≤200 t/ha/year
  7) >200 t/ha/year

- In the indicator, 'Moderate' soil loss is defined as 0–10 t/ha/year, 'Intermediate' as 10–25 t/ha/year, and 'High' as over 25 t/ha/year.

Sources:

Data provided by the Directorate-General for Rural Development, Innovation and Forestry Policy. Secretariat-General for Agriculture and Food. Ministry of Agriculture, Fisheries and Food.

Recommended websites:

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

2.6 NATURAL ENVIRONMENT

Spain's biodiversity is among the richest in Europe. The country is home to four of Europe's nine biogeographical regions, three of which —Mediterranean, Macaronesian and Alpine— are particularly rich in species. There are several reasons for this. Firstly, Spain's varied orography allows for widely differing climates, from glaciers through to deserts and steppes, and so provides highly distinct niches for a huge range of species. Secondly, because it is positioned between two seas and two continents, Spain hosts both African and European species — as well as being home to the species that are resident here all year round, it also receives migratory species from the north in winter and from Africa in summer.

Moreover, the country's lithological diversity and its complex geological history have conditioned the development of numerous species that were common in glacial times and which are now endemic and firmly established in its mountainous regions that, because of their isolated nature, produced species radiation. Thirdly, more recent historical factors, such as Spain's slow economic development, have resulted in less intensive land use and so have prevented the loss of large species such as the bear, wolf or black vulture, which disappeared from nearby countries centuries ago. Worth mentioning here is that Spain is one of the few countries in the world that has an endemic feline (the Iberian lynx), as well as a large bird of prey (the Imperial eagle) and a host of other endemic species.

Another of the factors that contribute to this country's enormous biodiversity is the insular nature of several regions. Islands are biodiversity laboratories that generate new species, especially when those islands are located far from the mainland and are mountainous, as in the case of the Canary Islands.

In 2017, a total of 53 new Fluvial Nature Reserves (928 km) were declared to conserve stretches of river subject to little or no human intervention in accordance with the Water Framework Directive (Directive 2000/60/EEC) and Article 42 of the recast text of Law 1/2001 on water, which makes it mandatory to incorporate this environmental protection category into national hydrological plans.

The declaration was made via the Resolution of the Council of Ministers of 10 February 2017 pursuant to the provisions of Article 25 of Law 10/2001 of 5 July 2001 on the national hydrological plan and drew on reports by the CNA (National Water Council) and the CAMA (Environmental Advisory Council).

A milestone in the protection and recovery of emblematic species was reached with the birth of a bearded vulture in the Picos de Europa National Park, the first time that a formerly extinct species had reproduced, setting a precedent for recovery of numerous species of Iberian fauna.

Having an appropriate regulatory framework in place is fundamental to the conservation of landscapes and species. One of the main conservation issues for several of Spain's most significant and threatened bird species is the hazard that high-voltage powerlines present because of the risk of collision or electrocution. Royal Decree 264/2017 of 17 March 2017 has been implemented to adapt these powerlines to minimise their impact. It also aims to reduce the risk of forest fires caused by electrocuted birds falling to the ground in flames.

Protected areas

- In 2017, terrestrial protected area accounted for 32.8 % of total land area, while marine protected area reached 8 % of the marine total.
- In 2017, Biosphere Reserves occupied almost 11 % of Spain's land area.

Forest area and other woodland formations

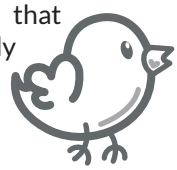
- Spain has 27.8 million ha of woodland, of which forest makes up 18.4 million ha.
- The autonomous communities with the highest ratios of forest to land area are the Basque Country (54.9 %), Catalonia (49.4 %) and Galicia (49 %).

Forest defoliation

- In 2017, both broad-leafed and coniferous trees showed a reduction in the percentage of healthy woodland compared to 2016.
- In 2017, 24.8 % of trees presented defoliation in excess of 25 %.

Trends in common bird populations

- The SACRE bird-monitoring programme is one of the best examples of citizens' science.
- The trends in agricultural and urban bird populations are negative, while that of woodland birds is positive and that of shrubland birds remains fairly stable.



Wild terrestrial species diversity

- Of the 915 species of wild terrestrial vertebrates included in the EIDOS database, 104 (11.34 %) are considered to be endangered according to the IUCN.
- Spain enjoys high diversity and endemicity of both terrestrial vertebrates and vascular flora.

Environmental monitoring

- In 2017, the number of criminal offences committed against the environment rose by over 25 %.
- Meanwhile, the number of arrests fell by 3.1 % with respect to 2016, decreasing to 393.

Protected areas

Total protected area in Spain. 2017

Protection category	Terrestrial		Marine		Total protected area
	(ha)	(%)	(ha)	(%)	(ha)
Protected area (ha)	16 604 255.00	32.80	8 531 199.21	8.00	25 135 454.21

Source: MITECO

Protected area in Spain by protection category. 2017

Protection category		Terrestrial		Marine		Total protected area
		(ha)	(%)	(ha)	(%)	(ha)
PA		7 383 423.68	14.59	511 446.59	0.48	7 894 870.27
Natura 2000 network		13 833 014.68	27.33	8 432 232.30	7.91	22 265 246.98
Other international categories	MaB	5 550 107.62	10.96	491 778.52	0.46	6 041 886.14
	RAMSAR	282 693.99	0.56	25 605.76	0.02	308 299.75
	SPAMI	51 857.86	0.10	96 625.70	0.09	148 483.56
	OSPAR	-	-	2 034 218.94	1.91	2 034 218.94

Source: MITECO

- ***In 2017, terrestrial protected area accounted for 32.8 % of total land area, while marine protected area reached 8 % of the marine total***
- ***In 2017, Biosphere Reserves occupied almost 11 % of Spain's land area***

In 2017, Spain's terrestrial protected area stood at 16 604 255 ha, 32.8 % of its total land area. Marine protected area amounted to just over half that figure, reaching 8 531 199.21 ha, equivalent to 8 % of the total marine area.

This protected area is made up of Protected Areas (PAs), the areas included in the Natura 2000 network and the areas protected under international categories such as the Specially Protected Areas of Mediterranean Importance (SPAMIs) or the RAMSAR Convention, among others.

Given that the PA and Natura Network systems are now mature and well established, and that almost one third of Spain's land area is included in them, their size is fairly stable, though it does increase slightly each year. They represent 14.6 % and 27.3 %, respectively, of Spain's total area. As regards the areas protected under international categories, only Biosphere Reserves showed an increase, albeit slight, and now cover almost 11 % of the country.

Of the 22 265 246.98 ha that made up the Natura 2000 network in 2017, land areas accounted for 13 833 014.68 ha and marine areas for 8 432 232 ha. This breaks down as 1 863 protected areas: 1 467 Sites of Community Importance (SCIs), of which about 77 % (1 134) had been designated as Special Areas of Conservation (SACs), and 647 Special Protection Areas (SPAs) for wild birds. For the purpose of counting the total number of protected areas in the Natura 2000 network, those that have been declared both SCIs and SPAs for wild birds are counted just once. Likewise, to avoid double counting, it is important to recall that adding together the areas designated as SCIs and SPAs does not produce the total area covered by the Natura 2000 network, as these two categories overlap.

Degree of protection varies according to autonomous community. The one with most terrestrial protected area is the Canary Islands at 77.3 %. It is followed by Rioja (51.3 %), Madrid (41.2 %) and Valencia (39.7 %).

Terrestrial protected area (%), 2017. Total for Spain: 32.8 %.

Source: MITECO

Definition of the indicator:

This indicator shows Spain's protected area as a percentage of its total land area and offers disaggregated information on each protection category: Protected Areas, Natura 2000 network and various international categories. The information on protected area by autonomous community is based on the land area of each autonomous community.

Methodological notes:

- Law 42/2007 of 13 December 2007 on natural heritage and biodiversity defines protected natural areas as '... those areas of national territory, including inland and marine waters (...) that meet at least one of the following conditions and are declared as such:
  - Contain natural elements or systems that are representative, unique, fragile, endangered or of special ecological, scientific, scenic, geological or educational interest.
  - Are specifically intended to protect and preserve biological diversity, geodiversity and associated natural and cultural resources.'
- Natura 2000 is a European environmental network made up of Special Areas of Conservation —and the Sites of Community Importance on which these are declared— established in accordance with the Habitat Directive (Directive 92/43/EEC), and Special Protection Areas for wild birds established under the Birds Directive (Directive 2009/147/EC). Its purpose is to ensure the long-term survival of Europe's most endangered species and types of habitat and it is the most powerful tool of conservation policy on biodiversity in the European Union. To achieve SAC designation, Member States must submit to the European Commission for approval the areas that noticeably contribute to maintaining or, where applicable, recovering the favourable state of conservation of natural habitats and the habitats of species of Community interest, and they must take the action necessary to manage those areas.
- For the purposes of calculating the indicator:
  - Index of terrestrial protected area. This is measured in percentage terms and is calculated as follows = [terrestrial protected area (ha) x 100] / total land area of Spain (ha)
  - Index of marine protected area. This is measured in percentage terms and is calculated as follows = [marine protected area (ha) x100] / total marine area of Spain (ha)
  - Total land area of Spain (ha) = 50 622 367.55
  - Total marine area of Spain (ha) = 106 648 205.84
- The total protected area is not equivalent to the sum of the various protection categories as there are some overlaps. This means that a particular area could be part of a PA and at the same time be included in the Natura 2000 network or any other protection category. In short, areas in which protection categories overlap are only counted once.

Source:

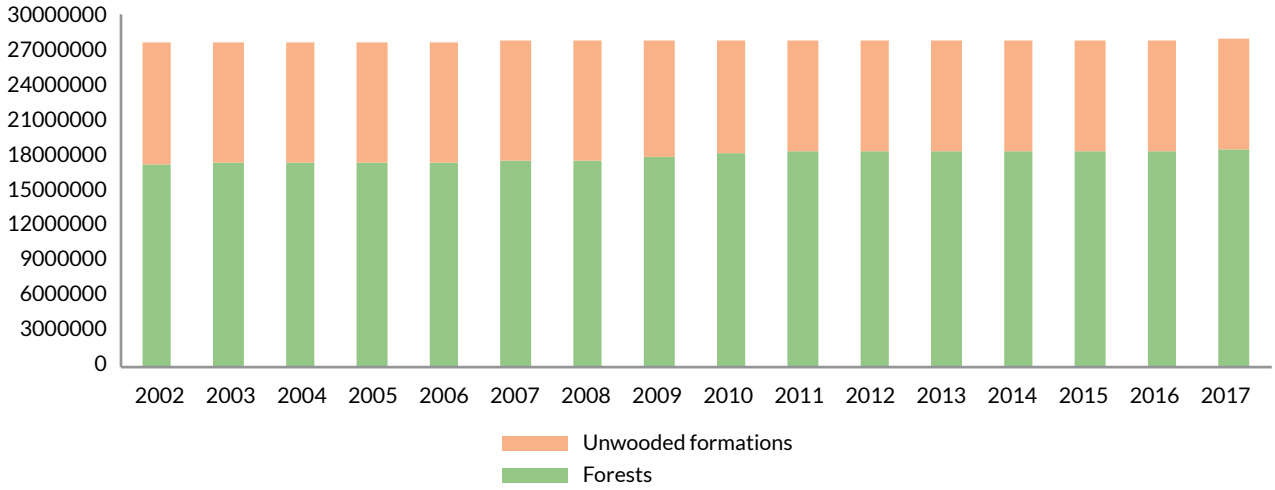
Nature Database. Directorate-General for Biodiversity and Environmental Quality. Ministry for Ecological Transition.

Recommended websites:

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

Forest area **and other woodland formations**

Forest area in Spain (ha)



Source: MAPA.

- ***Spain has 27.9 million ha of woodland, of which forest makes up 18.46 million ha***
- ***The autonomous communities with the highest ratios of forest to land area are the Basque Country (54.9 %), Catalonia (49 %) and Galicia (49.0 %)***

Spain's woodlands cover just over 27.9 million ha, representing 55.2 % of the country's total land area. More than 66 % of woodland (18.4 million ha) is forest. The rest (9.5 million ha) is mainly unwooded or contains only scattered trees. In 2017, new data for Extremadura were added to the existing data on Spain's other autonomous communities.

The autonomous communities with the highest ratios of forest to land area are the Basque Country (54.9 %), Catalonia (49.4 %) and Galicia (49 %). At the other end of the scale, the lowest ratios are found in the Canary Islands (17.7 %), Murcia (27.3 %) and Castile and Leon (31.3 %). The national average stands at 36.5 %.

Spain's geographical situation and its varied climate give rise to a wide variety of forest ecosystems. According to the INF (National Forest Inventory), 17.7 % of the country's forests consist of a single species, just over 80 % comprise two or more tree species and 1.7 % of forests are home to over ten species. Furthermore, even in forests dominated by one species, non-target species have a strong presence.

The most widespread species in terms of forest cover is the holm oak (*Quercus ilex*), which occupies 2.6 million ha (14.2 % of Spain's total forest area). It is also the dominant species in 88 % of dehesas, where it makes up a further 2 million ha, accounting for more than 27 % of the country's forests overall. As regards coniferous trees, most of the woodland consisting purely of these species is made up of *Pinus halepensis* (2 million ha, 11.3 % of forest area), *P. pinaster* and *P. sylvestris*. All together, pine forest accounts for 28.4 % of total wooded area.

Another way of assessing the state of national forests is by counting the number of trees. Between the IFN2 and the IFN3, this increased by more than two billion. The IFN4 shows that this upward trend continues, although the rise is not as pronounced as it was during the previous period.

Definition of the indicator:

Forest area and other woodland formations in Spain. In Spain, the term 'woodland' refers to the aggregate wooded and non-wooded forest area, which under the FAO classification correspond to 'forest' and 'other wooded land', respectively.

Methodological notes:

- According to international criteria, forest (wooded forest area) is defined as any area in which the canopy cover fraction is greater than 10 %.
- Non-wooded forest area: land with a canopy cover fraction (comprising forest tree species, if present) of less than 10 %, comprising open woodland (canopy cover fraction of 5–10 %) and non-wooded woodland (canopy cover fraction <5 %). It includes scrub, grazing land and deserts. It is equivalent to the FAO's definition of other wooded land.
- In 2017, the information for Catalonia on the IFN's Forest Map of Spain was updated. The information for all the other autonomous communities remained unchanged.

Source:

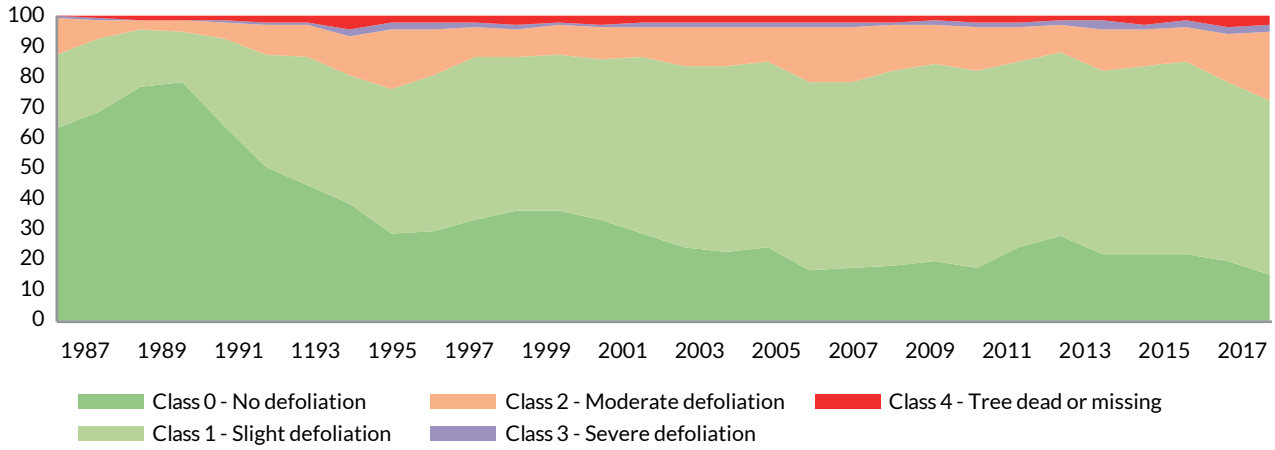
Information provided by the Subdirectorate-General for Forestry Policy. Directorate-General for Rural Development, Innovation and Forestry Policy. Ministry of Agriculture, Fisheries and Food.
Data taken from the IFN (National Forest Inventory) and the MFE (Forestry Map of Spain), both compiled at provincial level at 10-year intervals. 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, Rioja, Madrid and Catalonia: IFN4 and MFE25: Other autonomous communities. IFN3 and MFE50.

Recommended websites:

- http://www.mapa.gob.es/es/desarrollo-rural/temas/politica-forestal/default.aspx

Forest defoliation

Forest damage: total percentage of trees by defoliation class



Note: total trees includes coniferous and broad-leafed trees.
Source: IDF. MAPA.

- ***In 2017, both broad-leafed and coniferous trees showed a reduction in the percentage of healthy woodland compared to 2016***
- ***In 2017, 24.8 % of trees presented defoliation in excess of 25 %***

The national sampling carried out in 2017 indicates that the increase in defoliation in the sample inspected, already observed in 2016, has continued, with 24.8 % of sampled trees exhibiting defoliation in excess of 25 % (Class 2 and Class 3). It should be remembered that both the summer of 2016 and the spring of 2017 were exceptionally warm and dry. Moreover, 2015 was an extremely warm year in Spain.

In 2017, 72.2 % of the trees examined were healthy (Class 0 and Class 1) compared to 78.2 % in 2016. By species, in 2017, 70.7 % of broad-leafed trees were classified as healthy, compared with 77.2 % in 2016. In the case of coniferous trees, the percentage of healthy samples also decreased, albeit to a lesser extent, falling from 79.2 % in 2016 to 73.8 % in 2017.

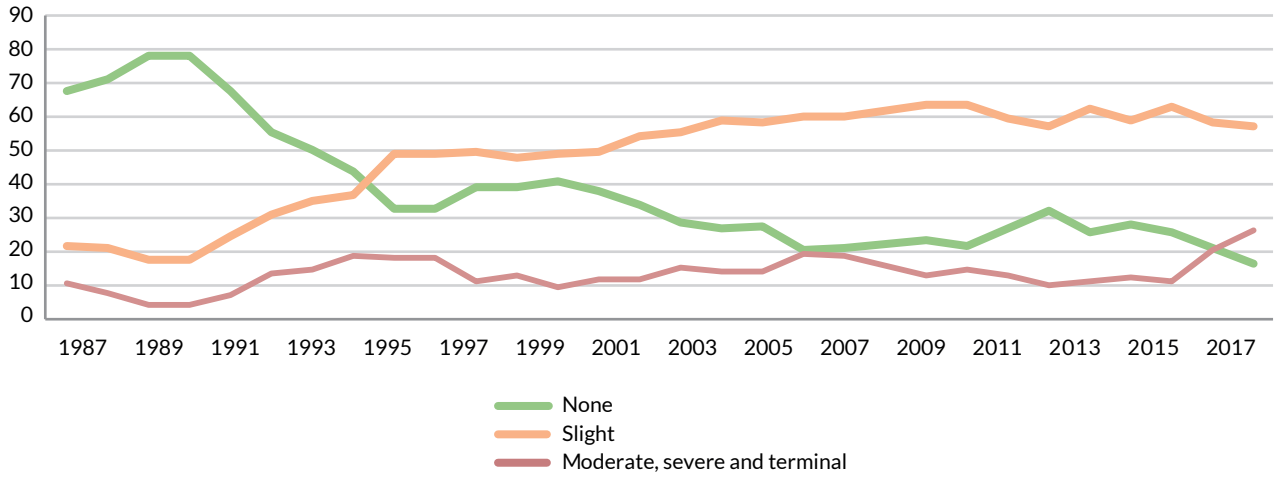
Dead trees (Class 4) fell in 2017 to 2.6 % in the case of coniferous trees and to 3.4 % in that of broad-leafed trees. Loss of woodland is mainly due to salvage logging and forest exploitation. Looking solely at woodland that has died as a result of damage, abiotic causes (wind, drought and snow) are the main culprits.

In 2017, average defoliation was greatest in holm oak and Aleppo pine forests. It was also the case that greatest damage attributed to drought was seen in those formations. Among the four most frequent species in the sample evaluated (*Pinus halepensis*, *P. sylvestris*, *Quercus ilex* and *Q. pyrenaica*), those that have been most affected in terms of health were the Aleppo pine and the holm oak, a fact that coincides with the analysis by type of forest formation.

As regards the potential causes of damage to woodland presenting defoliation in excess of 25 %, abiotic damage accounts for 49.5 % (principally drought), while damage caused by insects represents 24 %. In this case, the main cause is the presence of defoliators (processionary moth), though there is also damage, albeit less, by perforators (*Coroebus florentinus* and *Cerambyx sp.*).

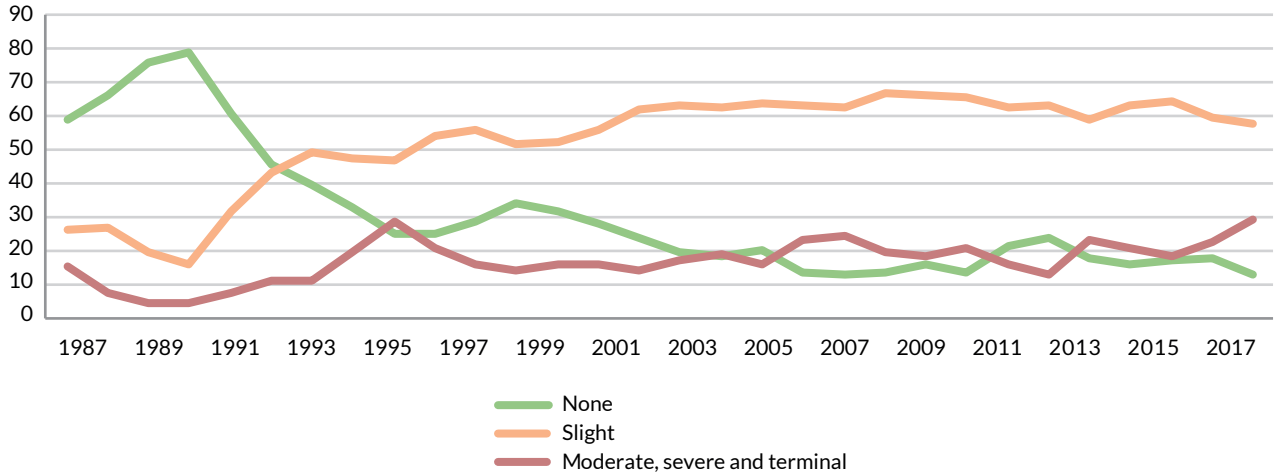
These results may be related to the drought that Spain has suffered in recent years. Historical data on defoliation in the woodland sampled (spanning 30 years) show a fluctuating trend with successive rises and falls. Past peaks in the series coincide with the droughts of 1995 and 2006. Once these droughts ended, the health of the woodland sample improved. Forest dynamics are slow-moving and data should not be analysed in isolation, but in complete historical series.

Forest damage: trend in defoliation in broad-leafed trees (percentage of damaged trees)
Defoliation classes 0, 1 and 2+3+4



Source: IDF. MAPA.

Forest damage: trend in defoliation in coniferous trees (percentage of damaged trees)
Defoliation classes 0, 1 and 2+3+4



Source: IDF. MAPA.

Definition of the indicator:

Forest defoliation is the process by which a plant species loses its leaves as a result of pathological or climatic stress that provokes premature or abnormal leaf fall. The indicator (degree of forest defoliation) reveals the current state of forest health and the underlying trend.

Methodological notes:

- It is analysed in terms of foliage loss from the tree crown at a series of sampling points. The results are classified into the following categories:

Loss of needles/leaves	Degree of defoliation
0–10 %	None
>10–25 %	Slight
>25–60 %	Moderate
>60 %–<100 %	Severe
100 %	Tree dead or missing

- Under the International Cooperative Programme on the Assessment and Monitoring of Air Pollution Effects on Forests, the Level I network, an international large-scale systematic network consisting of over 5 700 monitoring points distributed on a 16 x 16-km grid covering all of Europe, was set up in 1986 from a random start point. This network annually analyses forest health and assesses the main factors that have a negative impact on it. The number of sampling points in the Spanish Network currently stands at 620. Furthermore, its design allows for monitoring of other issues, such as the effects of climate change on forests, sustainable management and preservation of forest biodiversity.

Source:

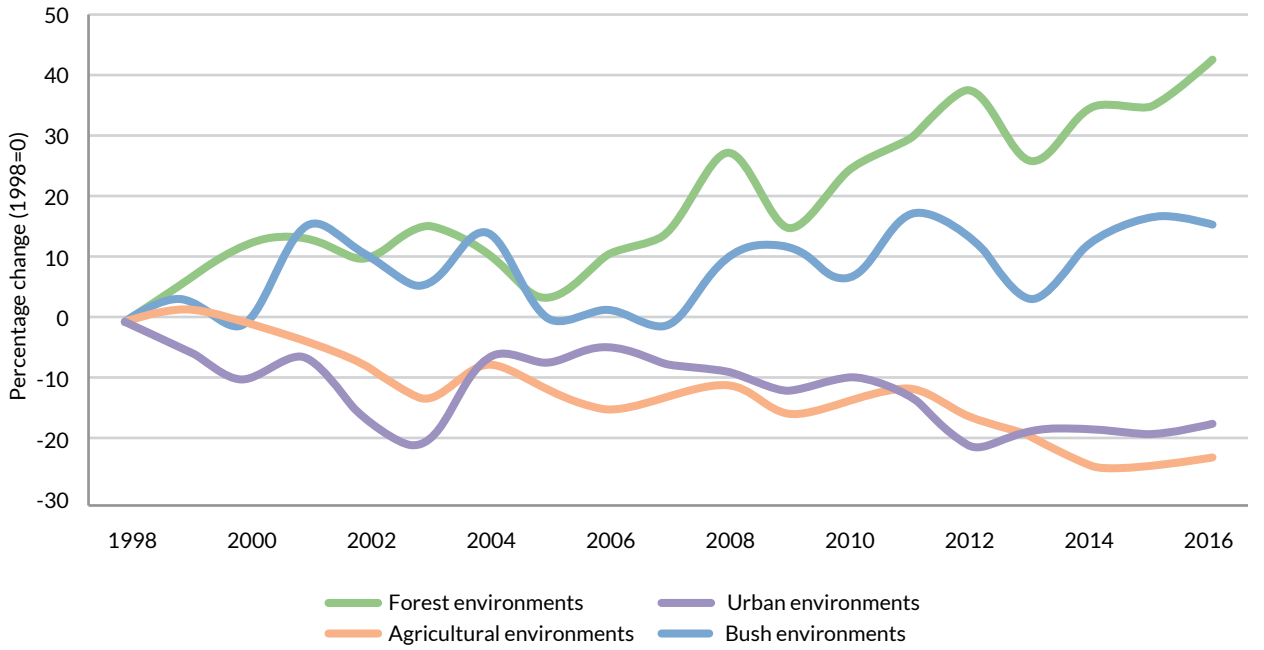
Information provided by the Subdirectorate-General for Forestry Policy. Directorate-General for Rural Development, Innovation and Forestry Policy. Ministry of Agriculture, Fisheries and Food.

Recommended websites:

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

Trends **in common bird populations**

Trends in common bird populations, by environment
Percentage change (1998=0)



Source: SEO/BirdLife

- ***The SACRE bird-monitoring programme is one of the best examples of citizens' science***
- ***The trends in agricultural and urban bird populations are negative, while that of woodland birds is positive and that of shrubland birds remains fairly stable***

Birds provide an excellent indicator of the state of diversity, as the trends in their populations include multiple ecological factors, they are sensitive to environmental changes, they are present in all habitats and they are easy to sample.

The SACRE bird-monitoring programme, launched in 1996, shows trends in bird populations, which vary significantly according to their respective environments.

As birds are easy to sample and are present in all habitats, and because trends and their populations depend on multiple ecological factors, they are optimal indicators of the state of biodiversity.

Analysis of bird population trends in recent years reveals that these vary significantly according to the environment in question. Thus, the data compiled under the SACRE programme show a long-term negative trend in bird populations associated with agricultural environments. Agricultural intensification, which entails farmland consolidation that eliminates the mosaic landscape that provides the varied niches these birds require, is one of the causes of the decline. Another is the use of agrochemicals, including various biocides, which ultimately affect the entire food chain.

Similarly, there is also a downward trend in birds associated with urban environments, the population of which shrunk by 3 % between 1998 and 2017.

Meanwhile, the expansion of forest habitats in recent decades is reflected in the population of the species to which they are home. Indeed, bird populations associated with forest environments have grown significantly in recent years. While this increase has not been linear (due to natural variations) it is notable and continued in 2017.

Finally, the trend in bird populations associated with shrubland environments has been the most stable since 1998.

Definition of the indicator:

Annual percentage change in common bird populations in Spain as compared with the population in the baseline year (1998). The trends are presented by type of bird-population environment: agricultural, urban, forest and shrubland.

Methodological notes:

- This indicator is compiled in Spain by SEO/BirdLife under the SACRE bird-monitoring programme. The programme involves around 1 000 volunteers, constituting one of Spain's best examples of citizens' science.
- The baseline year used in calculating the indicator is 1998. Although the SACRE programme has been under way since 1996, the first year in which samples were taken nationwide using a unified methodology was 1998. The data-collection methodology followed is publicly available at the following link: https://www.seo.org/wp-content/uploads/2012/04/instrucciones_-sacre_-2013_3.pdf
- The graph varies from those of previous years since the species considered in each group have changed. In 2017, the indicator was revised in light of the latest literature and the current results of the monitoring programmes, producing a change in the groups of species associated with each environment. If the methodology is maintained, analysing the data with the information available modifies the results retroactively. In this regard, there is international consensus on standardisation of the species-monitoring criteria.

Source:

- SEO (Spanish Ornithological Society), 2018. SEO/BirdLife bird monitoring programmes.
- Data provided by the SEO (taken from the Nature Database). Directorate-General for Biodiversity and Environmental Quality. Ministry for Ecological Transition.

Recommended websites:

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

Wild terrestrial species diversity

Wild terrestrial species diversity

Taxonomic group	Total species	Endangered[1]	Alien[2]
Terrestrial vertebrates	915	104	69
Land mammals	114	19	11
Birds	581	58	16
Amphibians	36	5	0
Reptiles	92	15	11
Freshwater fish	92	7	31
Terrestrial invertebrates	57 000	>258 (>0.5 %)	-
Vascular plants	7 066	826	141
Non-vascular terrestrial plants	>2 000	>170 (>9 %)	-
Bryophytes	1 100	170 (15 %)	-
Fungi	23 000	-	-
Total terrestrial species	>91 000	-	210

Source: MITECO

- ***Of the 915 species of wild terrestrial vertebrates included in the EIDOS database, 104 (11.34 %) are considered to be endangered according to the IUCN***
- ***Spain enjoys high diversity and endemicity of both terrestrial vertebrates and vascular flora***

Continuing the project begun in 2016 to harmonise data and information on wild species present in Spain, the table above presents information on wild species in this country. The information comes from the various projects carried out by the Ministry for Ecological Transition in recent years (atlases, red books, catalogues, inventories, reports, etc.), as well as from information sources integrated into the Inventory of Terrestrial Species, giving the information a common standardised structure based on the international Plinian Core standard, which allows for real-time data presentation. It is considered official information and is available on the Ministry for Ecological Transition website.

The data provided for the taxonomic groups of vertebrates and vascular flora are taken from the EIDOS standardised database.

[1]*Endangered species:* Refers to species whose survival is unlikely if the causal factors of their current situation remain in effect, or to species whose populations are at risk of being in a situation in which their survival is unlikely in the immediate future if the adverse factors affecting them are not corrected.
[2]Alien or non-indigenous species: Refers to species and subspecies, including their parts, gametes, seeds, eggs or propagules that could survive or reproduce, which have been introduced outside their area of natural distribution or area of potential dispersal and which would not have occupied the current area if not introduced directly or indirectly or if not managed by humans.

It is not possible to perform a complete analysis of all the terrestrial species because of the lack of information on a significant part of other taxonomic groups, particularly invertebrates and fungi.

Despite this uncertainty, there is no dispute that wild species diversity in Spain is very high. It is home to 915 vertebrate species and over 7 000 vascular plant species, of which 11.34 % and 11.69 %, respectively, are included in one of the IUCN endangered species categories.

Spain is particularly rich in terrestrial vertebrates when compared with the levels within the European and Mediterranean areas. Among the countries that make up this geographical area, Spain is second only to Turkey as regards total species richness and endemicity. It is noteworthy that the proportion of endemic fishes, amphibians and reptiles is significant, despite their limited mobility. This is not the case with birds and mammals, which are much more mobile and capable of crossing barriers like rivers and mountains, and are therefore also found in other countries.

As regards invasive alien species, it is important to note that these are one of the main causes of biodiversity loss worldwide. Alien species are found in Spain in all the fauna groups. However, it is among the fish, where one in three species is alien, that the situation is most pressing, Law 42/2007 of 13 December 2007 on natural heritage and biodiversity provides for the creation of strategies and plans to control and eradicate these species' populations.

Definition of the indicator:

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

Methodological notes:

- The IEET (Spanish Inventory of Terrestrial Species) is regulated by Royal Decree 556/2011 of 20 April 2011 on implementation of the IEPNB (Spanish Inventory of Natural Heritage and Biodiversity). It lists the distribution, abundance and state of conservation of Spain's fauna (vertebrates and invertebrates) and flora (vascular and non-vascular).
- The conservation statuses considered endangered under the IUCN national categories include the following: Vulnerable (VU), endangered (EN) and critical (CR).
- Article 61(1) of Law 42/2007 of 13 December 2007 on natural heritage and biodiversity creates the **CEEEI (Spanish Catalogue of Invasive Alien Species)**, in which all invasive alien species and subspecies must be listed. Species considered alien are those listed in Royal Decree 630/2013 of 2 August 2013 regulating the Spanish Catalogue of Invasive Alien Species, as well as those species proposed for inclusion in that catalogue.

Source:

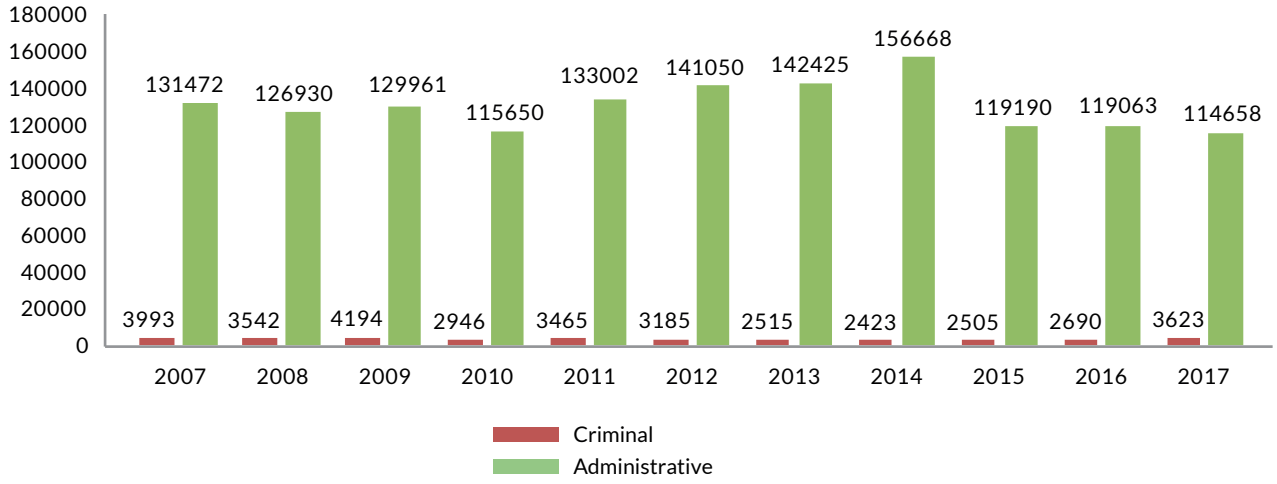
Nature Database. Directorate-General for Biodiversity and Environmental Quality. Ministry for Ecological Transition.

Recommended websites:

- http://www.miteco.gob.es/es/biodiversidad/temas/inventarios-nacionales/inventario-especies-terrestres/
- http://www.miteco.gob.es/es/biodiversidad/servicios/banco-datos-naturaleza/Eidos_acceso.aspx
- https://www.miteco.gob.es/es/biodiversidad/temas/conservacion-de-especies/especies-exoticas-invasoras/default.aspx

Environmental **monitoring**

Number of environmental offences registered by the SEPRONA nature protection service



Source: Compiled in-house from SEPRONA data.

- ***In 2017, the number of criminal offences committed against the environment rose by over 25 %***
- ***Meanwhile, the number of arrests fell by 33.08 % with respect to 2016, decreasing to 393***

The duties of SEPRONA (Civil Guard Nature Protection Service) include protecting soil, water, air and animal health, conserving flora and fauna species, game and fishing and combating wildfires.

In the last 15 years (2003–2017), the environment-related actions carried out by SEPRONA and other Civil Guard units have oscillated significantly, though the trend has been generally downwards. Administrative offences steadily decreased after the peak of 2004 until reversing in 2010 and then rising again until 2014. Since then, the number has fallen by 36.64 % to a record low (114 658 offences). Year on year, it dropped by 4 %. With regard to criminal offences, these also varied over the 15-year period, peaking in 2005 at over 5 000 before dropping to less than half that number in 2014. Since then, the trend has been upward. In 2016, the figure rose by 16.33 %.

Environment-related cases dealt with by the Civil Guard

		2011	2012	2013	2014	2015	2016	2017
Offences	Criminal	3 465	3 185	2 515	2 423	2 505	2 690	3 215
	Administrative	133 002	141 050	142 425	156 668	119 190	119 063	114 658
Total offences		136 467	144 235	144 940	159 091	121 695	121 753	118 281
Arrests		313	298	368	478	374	523	393

Source: Compiled in-house from SEPRONA data.

Administrative offences are the most frequent, accounting for over 97 % of the total number dealt with by SEPRONA. In 2017, this number fell 3.3 % year on year to 118 281, the lowest figure on record.

The number of arrests was a third lower than in 2016. The most common offence that resulted in arrest was water fraud and similar, which made up 22.9 % of the total. Meanwhile, 17.81 % of arrests resulted from drug-related offences against public health; arson resulting in forest fire was the third-most frequent cause, standing at 13.49 %, practically twice the level of the year before.

Definition of the indicator:

The indicator refers to the number of environmental cases dealt with by SEPRONA and other Civil Guard units.

Methodological notes:

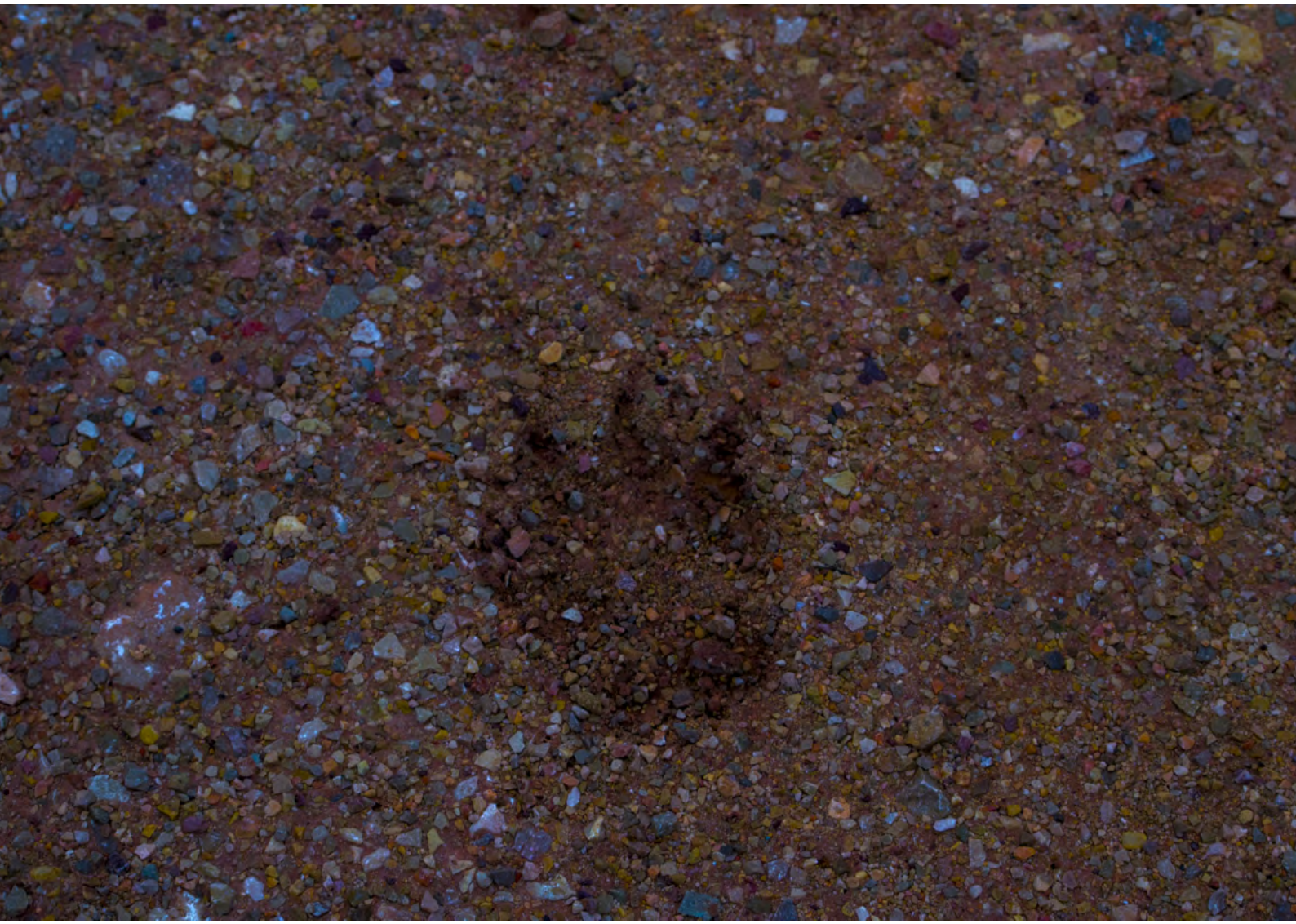
- Ministry of the Interior, 2018. Civil Guard Public Information Office. Directorate-General for the Civil Guard.
- Ministry of the Interior, 2018. SEPRONA. Directorate-General for the Civil Guard.

Source:

- Ministry of the Interior, 2018. Civil Guard Public Information Office. Directorate-General for the Civil Guard.
- Ministry of the Interior, 2018. SEPRONA. Directorate-General for the Civil Guard.

Recommended websites:

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



2.7 COASTS AND MARINE ENVIRONMENT

According to the report on the first phase of implementation of the Marine Strategy Framework Directive (2008/56/EC), COM(2014) 97 final, Europe's sea area is greater than its land area and is home to a rich, vulnerable and unique selection of marine life. On average, 41 % of Europe's population lives in coastal regions and a great number of economic activities depend on the marine environment, which gives rise to enormous pressure on coasts from human activity taking place on both land and sea.

The assessment of the environmental state of Europe's seas is based on factors such as overexploitation of fish stocks, pollution of the marine environment by high concentrations of nutrients (and the associated oxygen depletion) and hazardous substances, and accumulation of waste and marine litter (mostly plastic), this latter issue being an increasing problem, the extent of which is still unknown. Other major factors that contribute to the degradation of the marine environment include climate change and accidental spills.

Spain's coastline is just over 10 000 km long and hosts a rich and varied coastal and maritime heritage that requires extensive conservation and protection. That coastline supports significant tourist and fishing industries and provides the country with strategic transport links. Spain's marine waters cover over 1 000 000 km², twice its land area.

The principal aim of the Marine Strategies —marine environment planning instruments created under Directive 2008/56/EC of 17 June 2008 establishing a framework for Community action in the field of marine environmental policy (Marine Strategy Framework Directive)— is to attain good environmental status for the country's seas.

In 2017, a meeting was held of the five Marine Strategy monitoring committees, which are collegiate bodies and the main tool for cooperation with regional governments. At the meeting, they discussed the mechanism for exchanging information between regional and central government, fundamentally for the update of the initial assessment that had to be carried out in 2018. They also discussed the drafts of two royal decrees — the royal decree adopting the marine strategies and the royal decree regulating the compatibility report and establishing the criteria for compatibility with the marine strategies.

In 2017, the Commission issued Decision 2017/848 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. This revision seeks to facilitate consistency and coordination between Member States when establishing good environmental status and assessing it.

Likewise, via Directive 2017/845 it adopted Annex III to the Marine Strategy Framework Directive on the indicative lists of elements to be taken into account for the preparation of marine strategies. This Directive is in the process of being transposed into Spanish law via the draft royal decree amending Annex I to Law 41/2010 of 29 December 2010 on protection of the marine environment. This draft began its parliamentary passage, via public consultation, in November 2017.

The Marine Strategies, including the programmes of measures, will be adopted by royal decree in accordance with the provisions of Article 15 of Law 41/2010 on the protection of the marine environment. Debate of that royal decree began in July 2017. Notwithstanding, effective application of the programmes of measures has already begun.

Litter on beaches

- Between 2013 and 2017, plastic accounted for 70 % of marine litter sampled on Spanish beaches. It was followed by paper and cardboard, which represented 12 %.
- In May 2017, the strategic environmental statement under Spain's Marine Strategies was published.
- The Marine Strategies, including the programmes of measures, have been adopted by royal decree (Council of Ministers of 2 November 2018) in accordance with the provisions of Article 15 of Law 41/2010 on the protection of the marine environment. This royal decree was submitted for public consultation in 2017.
- The programmes of measures under Spain's Marine Strategies include actions to improve the state of the marine environment, in particular addressing the issue of marine litter.

Demarcated coastline

- Demarcation is an administrative procedure that consists of identifying land that meets the physical or legal characteristics set out in the law on coasts in order to determine the boundaries that would qualify it as publicly owned shoreline. The authority to approve demarcation lies with the General State Administration.
- In 2017, 96.11 % of Spain's coastline was demarcated.

IEHEM (Spanish Inventory of Marine Habitats and Species)

- The IEHEM is a key tool for understanding, planning and managing Spain's natural marine heritage.
- The reference list of marine species, which comprises almost 11 000, was published in 2017.

RAMPE (Spanish Network of Marine Protected Areas)

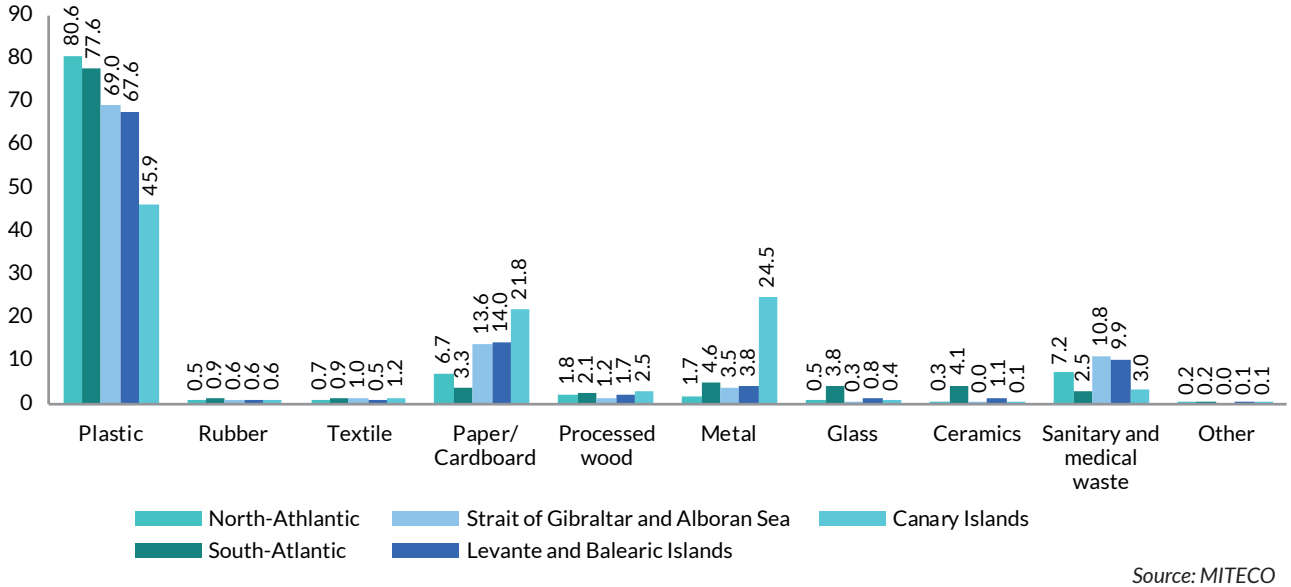
- The RAMPE is made up of protected areas located within Spain's marine environment that are representative of the country's natural marine heritage, irrespective of whether declaration and management of them are regulated by international, Community or state rules. The network may also include areas for which declaration and management are regulated by regional rules as per Article 36(1) of Law 42/2007 13 December 2007 on natural heritage and biodiversity.

Quality of coastal bathing waters

- The quality of Spain's coastal bathing waters increased in relation to 2016, with 90.5 % of sampling points being rated as excellent and 98.4 % being rated as sufficient or higher.
- In 2017, the bathing season on the coast lasted 131 days on average (slightly higher than the 128 days recorded in 2016), with the maximum being registered in the Canary Islands (303 days) and the minimum in Galicia (92 days).
- Spain ranks third in the EU by number of coastal bathing areas.

Litter **on beaches**

Breakdown of marine litter by type of litter and coastline (100-metre transect) (%) 2017



Source: MITECO

- *Between 2013 and 2017, plastic accounted for 70 % of marine litter sampled on Spanish beaches. It was followed by paper and cardboard, which represented 12 %*
- *In May 2017, the strategic environmental statement under Spain's Marine Strategies was published*
- *The Marine Strategies, including the programmes of measures, have been adopted by royal decree (Council of Ministers of 2 November 2018) in accordance with the provisions of Article 15 of Law 41/2010 on the protection of the marine environment. This royal decree was submitted for public consultation in 2017*
- *The programmes of measures under Spain's Marine Strategies include actions to improve the state of the marine environment, in particular addressing the issue of marine litter*

The marine strategy monitoring programmes include an indicator for litter on beaches that is used, alongside others, to assess the state of the marine environment as a descriptor of good environmental status.

Monitoring of marine litter on beaches dates back to 2001, when Spain committed to the programme established under the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention). The current marine litter monitoring programme, which is carried out seasonally on 26 beaches on Spain's coast, was created in 2013. Monitoring was then extended to the Mediterranean coastline and the Canary Islands.

Between 2013 and 2017, plastic accounted for 70 % of marine litter sampled on Spanish beaches. It was followed by paper and cardboard, which represented 12 %. Broadly speaking, the breakdown of the types of litter found on Spain's coasts can be considered homogeneous. The exception is the Canary Islands, which has a lower percentage of plastic (45.9 %) than the other coasts but higher percentages of paper and cardboard (21.8 %) and metals (24.5 %).

The most common items of litter found in the period 2013–2017 are listed below.

Marine litter on Spanish beaches: mean numbers of most frequent items (2013–2017)

Type of litter	Number of items	Percentage
Pieces of plastic/polystyrene (0–2.5 cm)	20 384	15.9
Pieces of plastic/polystyrene (2.5–50 cm)	14 250	11.1
Cigarette butts	12 682	9.9
Ropes/cords (diameter <1 cm)	11 942	9.3
Lids and caps	10 558	8.2
Cotton buds	6 848	5.3
Drinks bottles	4 268	3.3
Sweet packets, sticks, etc.	3 954	3.1
Other pieces of wood <50 cm	3 458	2.7
Other	2 198	1.7
Foam, sponge	1 958	1.5
Shopping bags	1 566	1.2
Plastic cutlery and similar litter	1 535	1.2
Ropes (diameter >1 cm)	1 529	1.2
Food packaging	1 379	1.1
Other pieces of ceramic	1 362	1.1
Drinks cans	1 251	1.0
Small bags (fruit, frozen food, etc.)	1 064	0.8
Aluminium foil	1 059	0.8

Source: MITECO

Definition of the indicator:

The indicator shows the type of material, expressed as a percentage of the total, and the number of items of litter found on the beaches, by coast.

Methodological notes:

- Marine litter (code D10) is used as a descriptor of good environmental status in the marine strategy monitoring programmes.
- The indicator data refer to the types of material and number of items found on the beaches included in the marine litter monitoring programme that forms part of the programmes monitoring the state of the marine environment pursuant to Law 41/2010 of 29 December 2010 on protection of the marine environment.
- The methodology used in carrying out the campaigns includes counting and removing all visible items on 100-metre transects of beach. Breakdown of beaches in the marine litter monitoring programme. 2017

Coastline	Number of beaches
North Atlantic	9
South Atlantic	3
Strait of Gibraltar and Alboran Sea	3
Levante and Balearic Islands	9
Canary Islands	2

Source: MITECO

Sources:

Ministry for Ecological Transition, 2018. Information provided by the Directorate-General for Coastal and Marine Sustainability.

Recommended websites:

- http://www.miteco.gob.es/es/costas/temas/estrategias-marinas/default.aspx
- http://www.miteco.gob.es/es/costas/temas/proteccion-del-medio-marino/actividades-humanas-en-mar/basuras-marinas/default.aspx
- http://ec.europa.eu/environment/marine/index_en.htm

IEHEM (**Spanish Inventory** of Marine Habitats and Species)

IEHEM. No of taxa identified

Marine region	Algae (*)	Birds (*)	Phanerogams (*)	Fungi (*)	Invertebrates (*)	Mammals (*)	Fish (*)	Reptiles (*)
North-East Atlantic	571 (51)	58 (50)	12 (7)	0 (0)	1 547 (116)	74 (59)	584 (79)	11 (10)
North Atlantic	384 (40)	56 (50)	10 (7)	0 (0)	1 122 (80)	70 (59)	366 (65)	11 (10)
South Atlantic	279 (38)	53 (49)	11 (6)	0 (0)	430 (84)	67 (59)	414 (64)	11 (10)
Canary Islands	474 (42)	50 (48)	9 (6)	0 (0)	644 (102)	72 (59)	261 (44)	10 (10)
Mediterranean Sea	772 (65)	61 (53)	12 (6)	4 (0)	2 469 (126)	70 (59)	566 (76)	11 (10)
Strait of Gibraltar and Alboran Sea	438 (64)	58 (51)	12 (6)	4 (0)	1 996 (124)	69 (59)	439 (74)	11 (10)
Levante and Balearic Islands	720 (65)	55 (52)	10 (6)	0 (0)	1 904 (120)	68 (59)	555 (76)	11 (10)

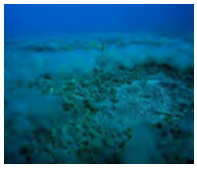
(*) Species with some level of protection.
Source: Ministry for Ecological Transition. Directorate-General for Coastal and Marine Sustainability.
Records processed as at 15/02/2017.

- ***The IEHEM is a key tool for understanding, planning and managing Spain's natural marine heritage***
- ***The reference list of marine species, which comprises almost 11 000, was published in 2017***

The IEHEM is the instrument used to systematise information on the distribution, abundance, state of conservation and use of the country's natural marine heritage. The starting point was the creation, in partnership with expert groups, of the national reference lists:

- The master list of marine habitat types found in Spain and a hierarchical classification (Decision of 22 March 2013 of the Director-General for Coastal and Marine Sustainability, published in the BOE of 12 April 2013) that sets out the 886 marine habitats identified and defines their hierarchical classification.
- The master list of marine species present in Spain (Decision of 17 February 2017 of the Secretary of State for the Environment) that includes almost 11 100 species, indicating their presence in each of the marine districts.

Marine habitats present in Spain

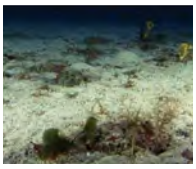


Sublittoral and circalittoral sands and muddy sands

Deep coral reefs

Structures produced by gas

Bathyal muds

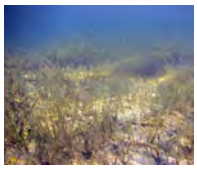


Infralittoral and circalittoral biogenic detritic bottoms

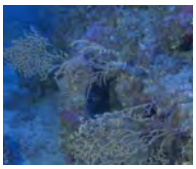
Meadows of phanerogams and rhizomatous green algae

Meadows of *Posidonia oceanica*

Macaronesian meadows of *Cymodocea nodosa*

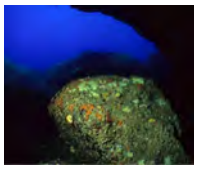


Mediterranean meadows of eelgrass



Circalittoral rock dominated by invertebrates

Protected upper infralittoral rock



Semi-dark infralittoral and circalittoral tunnels and caves

Information on each habitat in the inventory is available on the MITECO website by displaying the categories and clicking on the habitat's name.

Definition of the indicator:

The indicator lists the number of marine species expressed as marine taxa and identified by regions and districts, as well as the number of marine habitats present in Spanish waters.

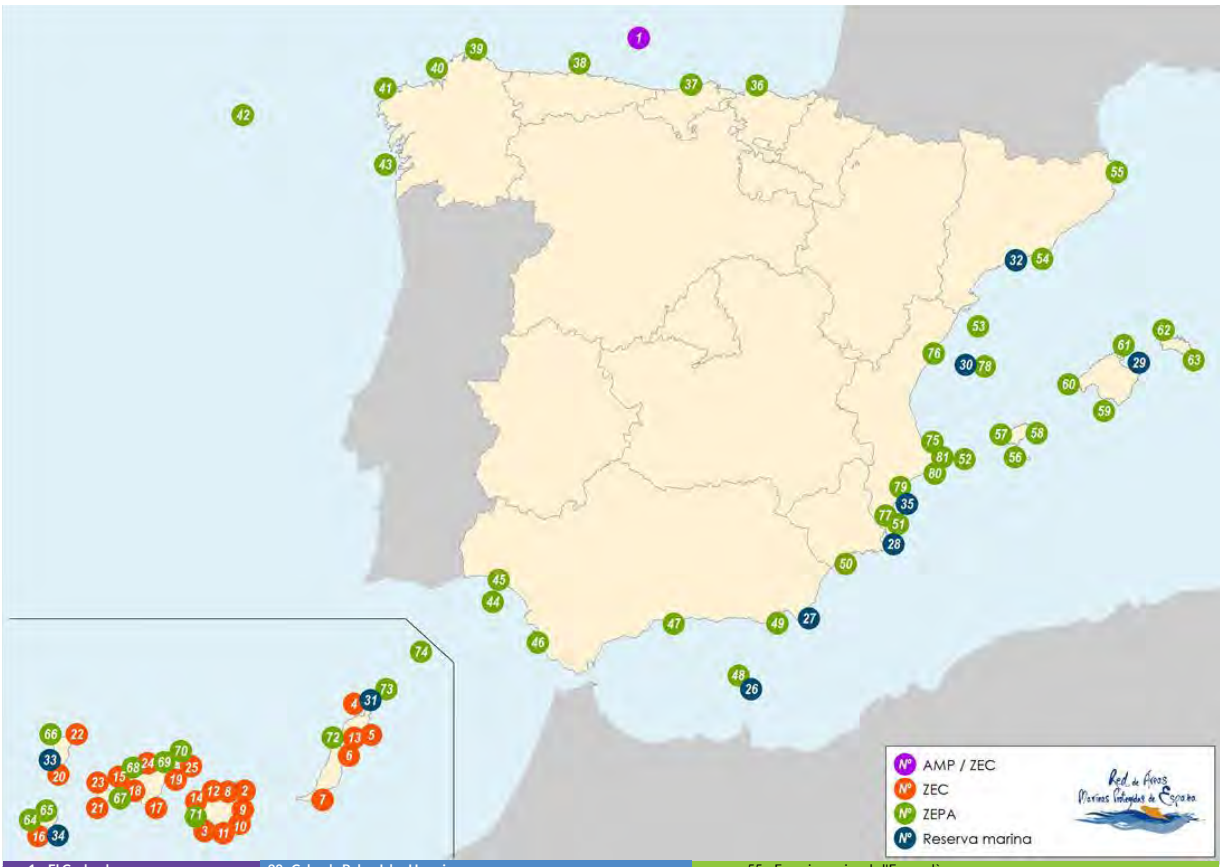
Source:

Ministry for Ecological Transition, 2018. Information provided by the Directorate-General for Coastal and Marine Sustainability.

Recommended websites:

- http://www.miteco.gob.es/es/costas/temas/biodiversidad-marina/habitats-especies-marinos/inventario-espanol/inventario-habitats-especies.aspx

RAMPE (**Spanish Network of Marine** Protected Areas)



1	El Cachucho	28	Cabo de Palos-Islas Hormigas	55	Espacio marino de l'Empordà
2	Área marina de La Isleta	29	Cala Ratjada-Levante de Mallorca	56	Espacio marino de Formentera y del sur de Ibiza
3	Franja marina de Mogán	30	Islas Columbretes	57	Espacio marino del poniente y norte de Ibiza
4	Sebadales de La Graciosa	31	Isla Graciosa e Islotes del norte de Lanzarote	58	Espacio marino del levante de Ibiza
5	Sebadales de Guasimeta	32	Reserva marina de Masía Blanca	59	Espacio marino del sur de Mallorca y Cabrera
6	Sebadales de Corralejo	33	Isla de la Palma	60	Espacio marino del poniente de Mallorca
7	Playa de Sotavento de Jandía	34	La Restinja-Mar de las Calmas	61	Espacio marino del norte de Mallorca
8	Bahía del Confital	35	Isla de Tabarca	62	Espacio marino del norte y oeste de Menorca
9	Bahía de Gando	36	Espacio marino de la Ría de Mundaka- Cabo de Ogoño	63	Espacio marino del sureste de Menorca
10	Playa del Cabrón	37	Espacio marino de los Islotes de Portios-Isla Conejera-Isla de Mouro	64	Espacio marino de la zona occidental de El Hierro
11	Sebadales de la Playa del Inglés	38	Espacio marino de Cabo Peñas	65	Espacio marino de los Roques de Salmor
12	Costa de Sardina del Norte	39	Espacio marino de Punta de Candelaria-Ría de Ortigueira-Estaca de Bares	66	Espacio marino del norte de La Palma
13	Cagafrecho	40	Espacio marino de la Costa de Ferrolterra-Valdoviño	67	Espacio marino de La Gomera-Teno
14	Sebadales de Güigüí	41	Espacio marino de la Costa da Morte	68	Espacio marino de los Acantilados de Santo Domingo y Roque de Garachico
15	Franja marina de Teno-Rasca	42	ZEPA Banco de Galicia	69	Espacio marino del Roque de la Playa
16	Mar de las Calmas	43	Espacio marino de las Rías Baixas de Galicia	70	Espacio marino de Anaga
17	Sebadales del Sur de Tenerife	44	Golfo de Cádiz	71	Espacio marino de Mogán-La Aldea
18	Cueva marina de San Juan	45	Espacio marino del Tinto y del Odiel	72	Espacio marino de La Bocayna
19	Sebadal de San Andrés	46	Espacio marino de la Bahía de Cádiz	73	Espacio marino de los Islotes de Lanzarote
20	Franja marina de Fuencaliente	47	Bahía de Málaga-Cerro Gordo	74	ZEPA Banco de la Concepción
21	Franja marina Santiago-Valle del Gran Rey	48	Espacio marino de la Isla de Alborán	75	L'Almadrava
22	Costa de Garafía	49	Bahía de Almería	76	Espacio marino de Orpesa i Benicàssim
23	Costa de los Órganos	50	Espacio marino de los Islotes Litorales de Murcia y Almería	77	Espacio Marino de Cabo Roig
24	Costa de San Juan de la Rambla	51	Espacio marino de Tabarca-Cabo de Palos	78	Espacio marino del entorno de Illes Columbretes
25	Sebadales de Antequera	52	Plataforma-talud marinos del Cabo de la Nao	79	Espacio marino de Tabarca
26	Isla de Alborán	53	Espacio marino del Delta de l'Ebre-Illes Columbretes	80	ZEPA Espacio marino de Ifac
27	Cabo de Gata-Níjar	54	Espacio marino del Baix Llobregat-Garraf	81	Espacio marino de la Marina Alta

Source: Ministry for Ecological Transition. Directorate-General for Coastal and Marine Sustainability.

- ***The RAMPE is made up of protected areas located within Spain's marine environment that are representative of the country's natural marine heritage, irrespective of whether declaration and management of them are regulated by international, Community or state rules. The network may also include areas for which declaration and management are regulated by regional rules as per Article 36(1) of Law 42/2007 13 December 2007 on natural heritage and biodiversity***

Marine protected area is one of the categories of protected area included in the RAMPE. It was created by Law 42/2007 of 13 December 2007 on natural heritage and biodiversity and incorporates into Spanish law international guidelines on conservation of marine biodiversity.

Later, Law 41/2010 of 29 December 2010 on protection of the marine environment formally created the RAMPE. In addition to defining it, it determines which marine protected areas are part of it and under what conditions. Royal Decree 1599/2011 of 4 November 2011 established the criteria for the integration of marine protected areas into the RAMPE.

Areas included in the RAMPE	No
Marine Fishery Reserves	10
Marine Protected Areas	1 (*)
Special Areas of Conservation	24
Special Protection Areas for wild birds under state jurisdiction	46
RAMPE total	81

(*) A marine protected area that has also been declared a Special Protection Area for wild birds.

The need to draw up a master plan for the RAMPE and establish common minimum criteria for coordinated and consistent management of it is established by Law 41/2010 (Articles 27 and 29). The master plan will be the basic coordination instrument used to achieve the objectives of the RAMPE and will serve as a reference document for the actions that the central and regional governments must take concerning the network as a whole and, in particular, concerning the requirements established at international and EU level.

The master plan will be adopted by royal decree and will be drawn up in partnership with, at least, the governments of the coastal autonomous communities and, in accordance with environmental assessment legislation and the law on protection of the marine environment, it must be submitted for approval to the environmental assessment procedure for plans and programmes. The minimum common criteria for coordinated and consistent management of the RAMPE must likewise be adopted by royal decree on the proposal of the Sectoral Conference on the Environment.

Definition of the indicator:
The indicator shows the marine areas included in the Spanish network of marine protected areas.

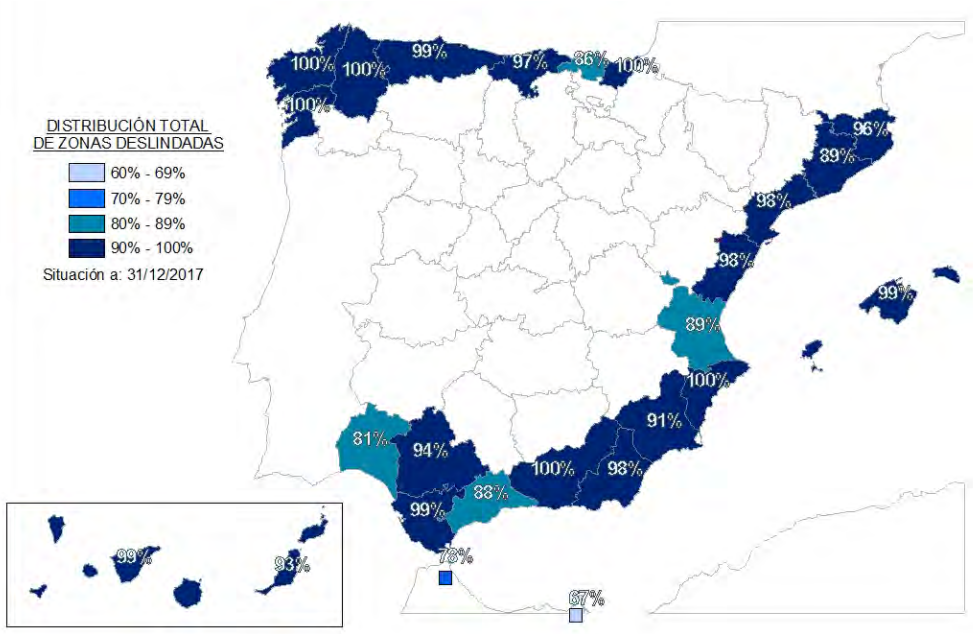
Source:
Ministry for Ecological Transition, 2018. Information provided by the Directorate-General for Coastal and Marine Sustainability.

Recommended websites:

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

Demarcated **coastline**

Percentage of demarcated coastline. 2016



Source: MITECO

- ***Demarcation is an administrative procedure that consists of identifying land that meets the physical or legal characteristics set out in the law on coasts in order to determine the boundaries that would qualify it as publicly owned shoreline. The authority to approve demarcation lies with the General State Administration***
- ***In 2017, 96.11 % of Spain's coastline was demarcated***

In 2014, Royal Decree 876/2014 of 10 October 2014 was passed approving the general regulation on coastal areas. This regulation introduces amendments with the aim, among others, of providing demarcation with greater legal certainty, establishing technical criteria to demarcate the publicly owned shoreline and providing greater guarantee to the public both during the procedure and after its completion.

Coordination between the Directorate-General for Coasts, the Property Registry and the Directorate-General for Land Registration ensures the legal certainty required by public and private stakeholders as regards whether or not property forms part of the publicly owned shoreline. Compulsory registration as part of the demarcation procedure was a new feature brought in by the general regulation on coastal areas.

In 2017, demarcation of 110 760 m of publicly owned shoreline was approved, raising the percentage of demarcated coastline in Spain to 96.11 %. As in previous years, the procedure established has made it possible to continue processing the files on the sections not yet demarcated and to analyse those requiring review under the new legislation.

Definition of the indicator:

The indicator shows the length of the demarcated coastline by province, expressed as a percentage of the province's total coastline.

Source:

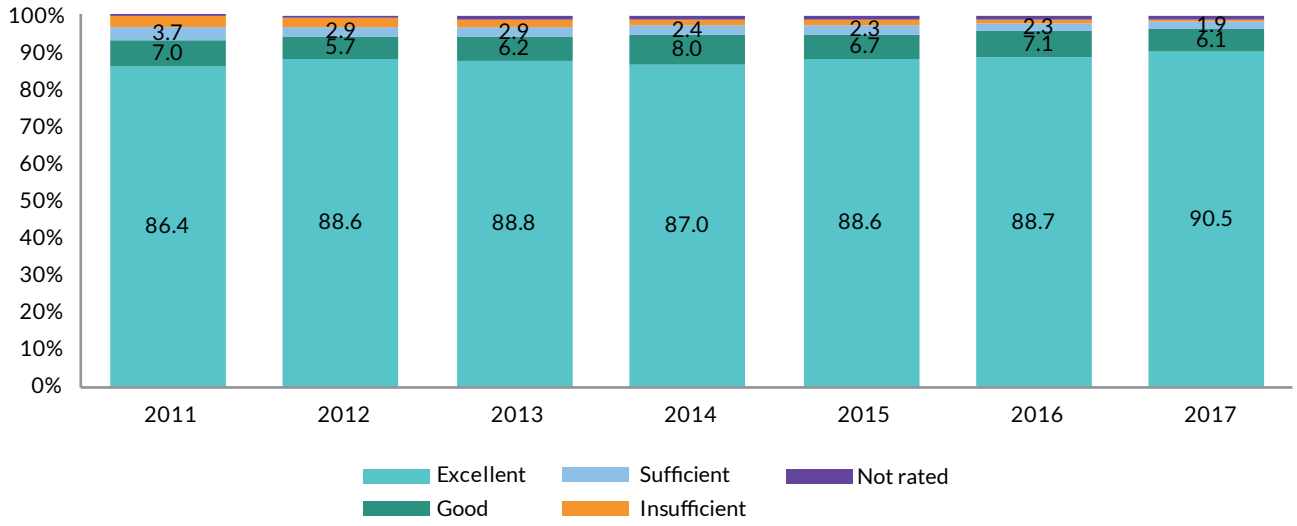
Ministry for Ecological Transition, 2018. Information provided by the Directorate-General for Coastal and Marine Sustainability.

Recommended websites:

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

Quality of **coastal bathing waters**

Percentage of sampling points, classified by quality category



Source: MSCBS

- ***The quality of Spain's coastal bathing waters increased in relation to 2016, with 90.5 % of sampling points being rated as excellent and 98.4 % being rated as sufficient or higher***
- ***In 2017, the bathing season on the coast lasted 131 days on average (slightly higher than the 128 days recorded in 2016), with the maximum being registered in the Canary Islands (303 days) and the minimum in Galicia (92 days)***
- ***Spain ranks third within the EU by number of coastal bathing waters, second by number of coastal bathing waters rated as being of excellent quality and fourth by number of coastal bathing waters rated as being of good quality***

The autonomous communities with most coastal sampling points in 2017 were Galicia (436), Andalusia (344), Catalonia (253), Valencia (246) and the Canary Islands (218). Those with fewest were Cantabria (40) and the autonomous cities of Ceuta (9) and Melilla (10).

Between 2011 and 2017, there was a slight increase in the number of bathing waters, which rose from 1 924 to 1 960 (+1.87 %). The number of sampling points recording excellent bathing water quality grew by 6.61 % in the same period, while in the other categories the change was negative, except for unrated bathing waters. In 2017, the trend was very similar, with the number of coastal bathing waters rising by 11 and the proportion of sampling points recording excellent bathing water quality increasing by 2.6 %.

In Spain, coastal bathing water quality rose in 2017 year on year, with 90.5 % of the sampling points recording excellent quality, 6.1 % good quality and 1.9 % sufficient quality, meaning that 98.4 % of the sampling points showed sufficient quality or higher.

The bathing season in this country generally lasts from the beginning of May to the end of September, the exception being the Canary Islands, whose bathing season is practically all year around, save for a brief winter break. In 2017, every autonomous community reported at least one bathing season. Andalusia, Asturias, Catalonia, Ceuta, Valencia, Balearic Islands and Melilla designated a single season for all their coastal bathing waters; the Canary Islands, Cantabria, Galicia and Murcia designated two and the Basque Country designated four.

The average number of days in the bathing season varies from year to year. The average in 2017 was 131 days. The Canary Islands remains the autonomous community with the longest bathing season (303 days), followed by Ceuta (183), the Balearic Islands (154) and Melilla (153). The autonomous communities with the shortest bathing seasons were Galicia (92 days), the Basque Country (93) and Valencia and Catalonia (107 each).

Spain ranks third in the EU by number of coastal sampling points. The 1 960 points in operation in 2017 represented 13 % of the EU total. It was preceded only by France, with 2 065 sampling points, and Italy, with 4 864 points. Overall, the EU has 12 890 (86.3 %) coastal bathing waters where the quality is rated as excellent, 1 233 (8.3 %) where the quality is rated as good and 347 (2.3 %) were the quality is rated as sufficient. These values mean that on average in the EU, 96.9 % of sampling points recorded sufficient quality or higher, a proportion that placed Spain above the European average.

Definition of the indicator:

The indicator shows the percentages of the total number of coastal sampling points broken down by the four quality standards set by the legislation ('Insufficient', 'Sufficient', ' Good' and 'Excellent').

Methodological notes:

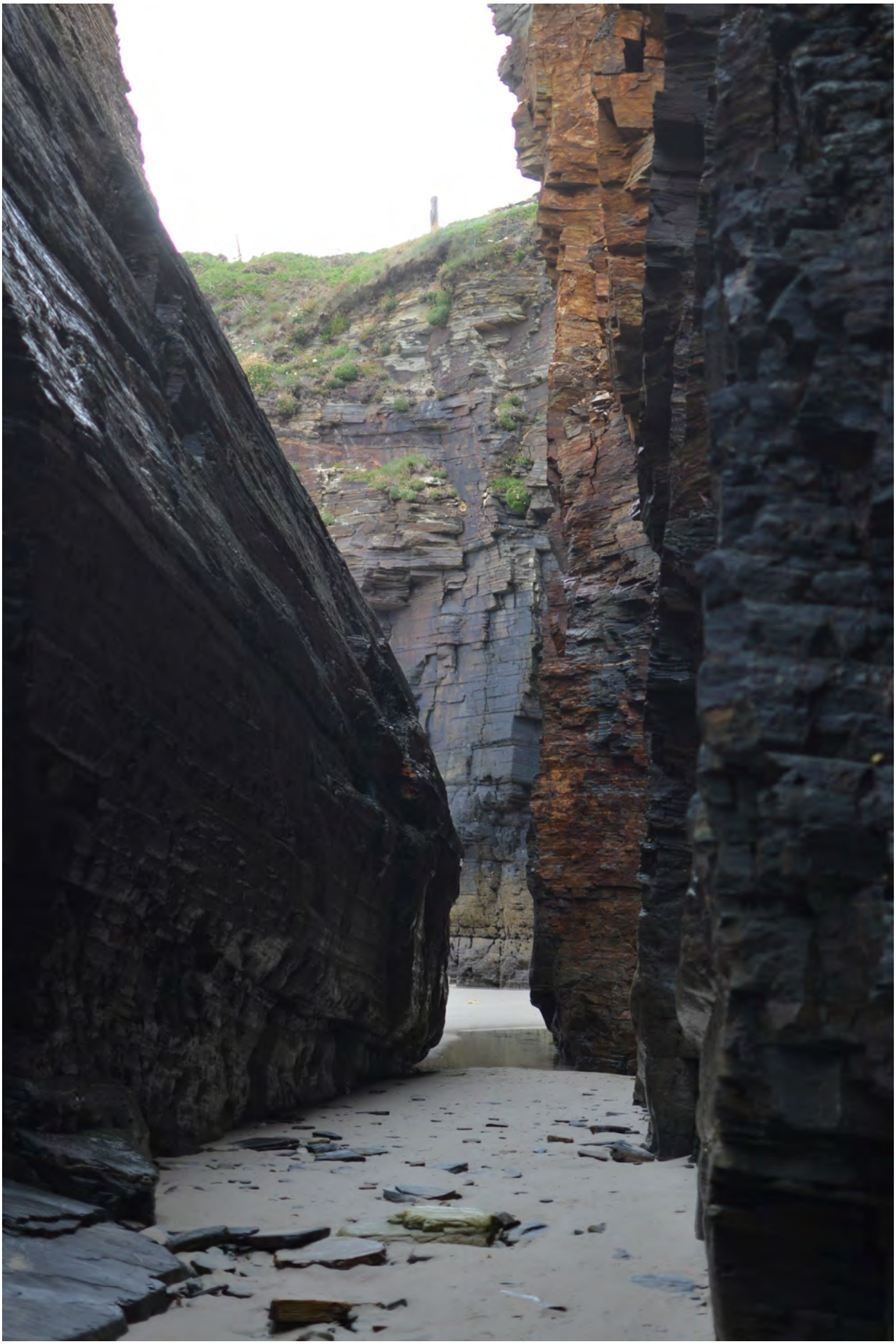
The report on bathing water quality in Spain is prepared each year by the Ministry of Health, Social Services and Equality. Each point is rated according to the four categories defined in current legislation. There is also a 'Not rated' category for sampling points at which the minimum number of samples required by national legislation was not taken. This report is the basis of the Spanish contribution to the Europe-wide report drawn up by the European Commission.

Source:

Ministry of Health, Consumer Affairs and Social Well-Being, 2018. *Calidad de las Aguas de Baño en España. Informe técnico. Temporada 2017* (Quality of Spain's Coastal Bathing Waters. Technical Report. 2017 Season). Taken from the website: Ciudadanos / Salud pública / Sanidad Ambiental y Laboral / Calidad de las aguas / Agua de baño / Publicaciones /Calidad del agua de baño en España [in Spanish]. 2017

Recommended websites:

- http://www.msssi.gob.es/profesionales/saludPublica/saludAmbLaboral/calidadAguas/aguasBanno/docs/INFORME_AGUAS_DE_BANIO_2017_.pdf
- http://www.eea.europa.eu/publications/european-bathing-water-quality-in-2017
- https://nayadeciudadano.msssi.es/



2.8 GREEN AND CIRCULAR ECONOMY

Published in February 2018, *España Circular 2030* (Circular Spain 2030) —the draft of the Spanish Circular Economy Strategy— constitutes the strategic and policy framework for a circular economy. Cooperation between the central and regional governments, local authorities and other stakeholders involved, especially producers and consumers of goods, remained a priority throughout the process.

The Spanish Circular Economy Strategy is organised around five main lines of action (production, consumption, waste management, secondary raw materials, and water reuse). Furthermore, the Strategy includes three cross-cutting lines of action (public awareness and participation; research, innovation and competitiveness; and employment and training).

The *Pacto por la Economía Circular* (Circular Economy Pact), led by the Ministry for Ecological Transition, provides a commitment that can be met by the main political, economic and social stakeholders in the transition to a new economic model.

The first World Circular Economy Forum was held in Helsinki (Finland) from 5–7 June 2017 and attracted nearly 1 500 attendees from more than 100 countries. This international event demonstrates the great interest generated by the circular economy and will be held again in October 2018, in Japan.

The framework established by the EU action plan for the Circular Economy (COM(2015) 614 final) of December 2015 considers plastics to be one of its high-priority work areas. Its analysis states that in the EU, less than 25 % of collected plastic waste is recycled and about 50 % goes to landfill, while the use of plastics has grown steadily.

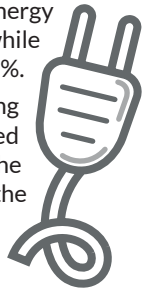
The Commission will adopt a strategy on plastics in the circular economy, addressing issues such as recyclability, biodegradability, the presence of hazardous substances of concern in certain plastics, and marine litter. This strategy was approved in January 2018 by the Commission's Communication of 16 January titled A European Strategy for Plastics in a Circular Economy (COM(2018) 28 final).

That same month, and within the framework of the commitments entered into under the action plan, the Commission published a monitoring framework for the circular economy, consisting of a core set of indicators designed to monitor its main elements.

The Commission Work Programme 2018 approved in October 2017 (COM(2017) 650 final) establishes as one of its commitments working to ensure that all plastic packaging will be recyclable by 2030.

Energy productivity

- In 2016, Spain generated EUR 9.1 GDP per kilogram of energy use, as compared to the EUR 8.4 of GDP generated per kg of energy use in the EU-28.
- Between 2000 and 2016, energy productivity rose by 30 % in Spain, while the EU-28 average increased by 29.2 %.
- Measured in terms of purchasing power parity, in 2016, Spain was ranked eighth in the list of countries with the highest energy productivity, while the EU stood in twelfth place.

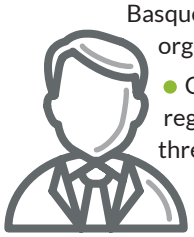


Domestic material consumption

- In 2016, Spain used 402.8 million tonnes of materials, 0.9 % fewer than those used in 2015 in the same production processes. The total amount of materials consumed in Spain between 2008 and 2016 fell by 50.4 %.
- In 2016, material productivity stood at EUR 2 745.3 per tonne, representing a 4.2 % increase on the previous year.
- Consumption of materials per capita fell by 50.9 %, from 17.7 t/capita in 2008 to 8.7 t/capita in 2016.

Organisations listed in the EU Eco-management and Audit Scheme (EMAS) register

- In 2017, a total of 827 Spanish organisations were listed in the EMAS register, 10.6 % fewer than in 2016.
- The autonomous communities of Catalonia, Madrid, Galicia, the Canary Islands and the Basque Country were home to 75 % of all organisations registered in Spain in 2017.
- Over 80 % of the organisations registered in the EU-28 hailed from only three countries: Germany, Italy and Spain.

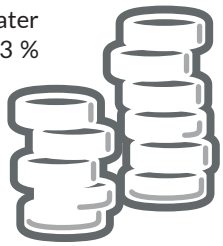


Environmental taxes

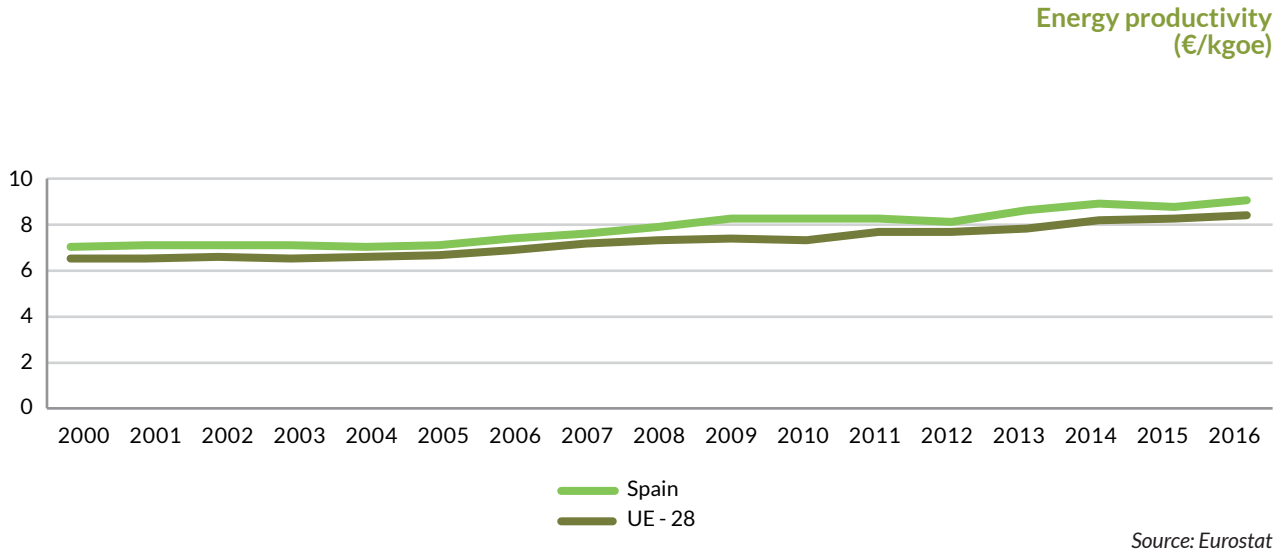
- In 2016, environmental tax revenue amounted to EUR 20.64 billion, 1 % less than in 2015.
- The breakdown of environmental taxes in 2016 is as follows:
  - Energy: 83 %
  - Transport: 12.5 %
  - Pollution: 4.3 %
  - Resource use: 0.2 %
- In 2016, Spain contributed 5.7 % of all EU-28 environmental taxes.
- Environmental taxes in Spain accounted for only 1.8 % of GDP in 2016, putting Spain at the bottom of the list of European partners.

Outlays on environmental protection

- In 2016, national outlays on environmental protection in Spain amounted to EUR 16.834 billion, 1.4 % more than in 2015.
- In 2016, outlays on environmental protection were equivalent to 1.51 % of total GDP.
- Waste management and waste water management services, accounting for 59.3 % and 18.3 % of total outlays, respectively, comprised the environmental protection activities with the highest contribution towards total expenditure.



Energy **productivity**



Source: Eurostat

- ***In 2016, Spain generated EUR 9.1 GDP per kilogram of energy use, as compared to the EUR 8.4 of GDP generated per kg of energy use in the EU-28***
- ***Between 2000 and 2016, energy productivity rose by 30 % in Spain, while the EU-28 average increased by 29.2 %***
- ***Measured in terms of purchasing power parity, in 2016, Spain was ranked eighth in the list of countries with the highest energy productivity, while the EU stood in twelfth place***

Energy productivity is one of the indicators used to monitor the Sustainable Development Goals (SDGs) set by the United Nations. Specifically, it forms part of the analysis of progress made towards SDG 7 on affordable and clean energy and SDG 12 on ensuring sustainable consumption and production patterns.

Spain lies above the European average in terms of energy productivity, measured by using the ratio between GDP and the energy consumed to produce it. In 2016, Spain generated EUR 9.1 GDP per unit of energy use (measured in kg of oil equivalent), as compared to the EUR 8.4 euros GDP generated for every unit of energy use that year in the EU-28.

Over 2000–2016, energy productivity in Spain increased by 30 %, slightly exceeding the EU-28 average of 29.2 %. During this same period, the upward trend in Spain shows occasional fluctuations from year to year. Since 2000, annual downturns were only seen in 2004, 2012 and 2015. In 2016, energy productivity showed a 3.4 % increase on the 2015 value.

In relation to the EU, and according to Eurostat, in 2016, Spain ranked eighth in the list of countries with the highest energy productivity. In this case, productivity was measured using the GDP ratio, calculated in terms of purchasing power parity (PPP), generated that year per unit of gross primary energy consumed. The energy productivity value stood at EUR 10.2 (in PPP)/kgoe, as compared to the EU average of EUR 9.1 (in PPP)/kgoe, positioning Spain in twelfth place.

Definition of the indicator:

The indicator shows economic wealth produced, measured as GDP per unit of gross domestic energy consumption. Gross domestic energy consumption is defined as primary energy consumption plus fuel used for non-energy purposes. This ratio is shown for the average of the EU-28 countries and for Spain.

Methodological notes:

This indicator replaces the one used in previous editions (energy intensity of the economy), which was measured as the annual ratio between gross domestic energy consumption and GDP.
Energy productivity is a way of assessing energy efficiency, as it analyses if economic growth can be achieved with lower energy consumption.
GDP is expressed in terms of purchasing power parity in euros referenced to the baseline year (2010).
Purchasing power parity enables comparisons to be made of living standards in different countries, eliminating differences between price levels and the value of their currencies. The latter is not applicable in the case of countries that share the euro as the single currency.

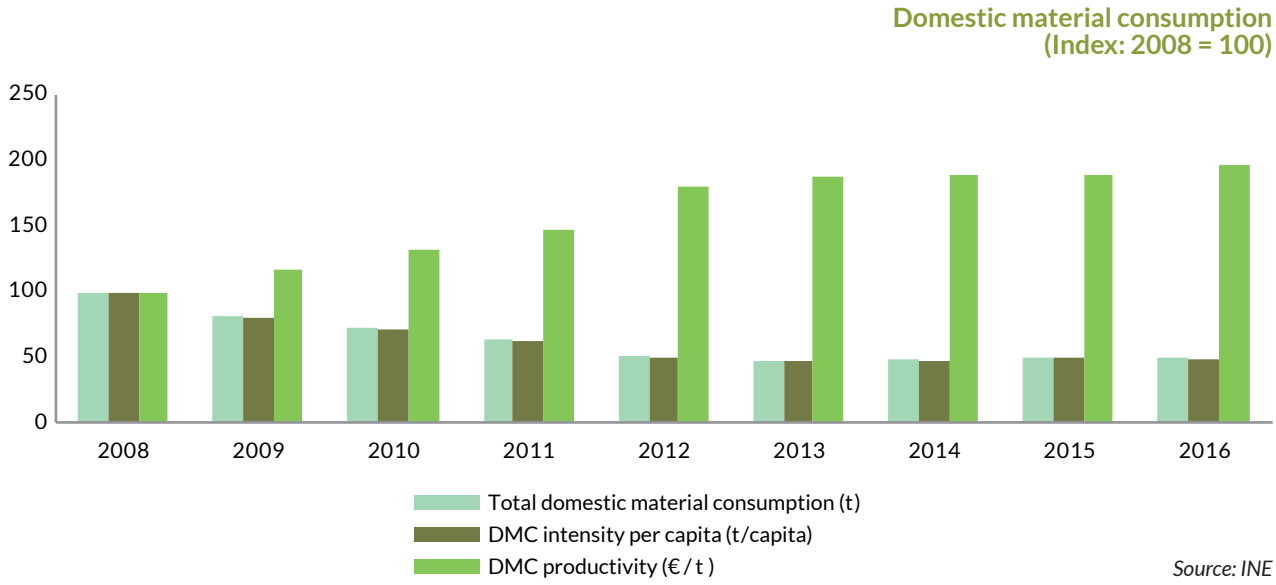
Source:

Eurostat: Information obtained from the Eurostat website. Available at: Statistics/Tables by themes/Environment and Energy/Energy/Sustainable development indicators: Goal 7/Energy productivity: sdg_07_30).

Recommended websites:

- http://ec.europa.eu/eurostat/en/web/products-datasets/-/T2020_RD310

Domestic material **consumption**



Source: INE

- ***In 2016, Spain used 402.8 million tonnes of materials, 0.9 % fewer than those used in 2015 in the same production processes***
- ***The total amount of materials consumed in Spain between 2008 and 2016 fell by 50.4 %***
- ***In 2016, material productivity stood at EUR 2 745.3 per tonne, representing a 4.2 % increase on the previous year***
- ***Consumption of materials per capita went down from 17.7 t/capita in 2008 to 8.7 t/capita (almost half) in 2016***

Domestic material consumption estimates the total amount of materials used in the production processes involved in a country's economic development. In 2016, Spain used 402.8 million tonnes of materials, 0.9 % fewer than those used in 2015 in the same production processes.

The amount of materials consumed in Spain between 2008 and 2016 fell by 50.4 %. The decrease seen over those years was steady, with one-off increases occurring only in 2014 (0.8 %) and 2015 (3.9 %).

Of that total consumption, in 2016, domestic extraction accounted for 82.1 % of the total (330.7 million tonnes), with the remaining 17.9 % corresponding to the physical trade balance (difference between imports and exports of materials).

Non-metallic minerals and biomass were the main materials extracted in Spain (based on provisional data), while metal ores and fossil fuels as a whole accounted for merely 4.5 %.

Material productivity is a ratio that represents the amount of GDP generated per tonne of material consumed. In 2016, this productivity amounted to EUR 2 745.3 per tonne, representing a 4.2 % increase on the previous year.

Between 2008 and 2016, material productivity rose by 98.9 %, showing increased efficiency in material use, as economic wealth was produced despite lower raw material consumption. Since 2008, material productivity has dipped only once —by 0.5 % in 2015— while in every other year in the series under review it increased.

Material intensity per capita is another indicator of resource efficiency. The 50.9 % decrease seen in the period under review —dropping from 17.7 t/capita in 2008 to 8.7 t/capita in 2016— reveals that productive development during these years was accompanied by lower material consumption per capita.

Domestic material consumption (DMC): total, intensity and productivity in Spain

DMC variables	2008	2009	2010	2011	2012	2013	2014	2015	2016 (advance estimate)
DMC (1 000 t)	811 939.8	662 726.5	588 651.0	519 561.4	413 412.5	388 042.4	391 232.1	406 562.0	402 789.4
DMC intensity per capita (t/capita)	17.7	14.3	12.6	11.1	8.8	8.3	8.4	8.8	8.7
Material productivity: GDP/DMC (€/t)	1 380.5	1 630.8	1 836.3	2 059.7	2 512.8	2 631.4	2 646.0	2 633.6	2 745.3

Source: INE

In 2016, Spain ranked third in the EU in material consumption per capita. With 8.7 t/capita, Spain came behind the United Kingdom (8.6 t/capita) and Italy (8.5 t/capita). Spain accounted for 6 % of all EU-28 material consumption, ranking seventh in 2016 in the list of countries with the highest consumption levels.

Definition of the indicator:

The indicator shows the trend (2008=100) in domestic material consumption (DMC) and in two of the main ratios derived from it: intensity per capita and productivity.

Methodological notes:

Domestic material consumption represents the total quantity of materials used directly in the economy. The material flow accounts record the physical input of material entering the national economic system and the outputs to other economies or to the natural environment. Domestic extraction covers the annual amount of solid, liquid and gaseous raw materials (excluding air and water) extracted from the natural environment to be used as inputs in the economy. They include biomass, minerals and fossil fuels.

Material productivity refers to the amount of GDP generated per unit of material consumed in the country's production cycle. It is calculated as the ratio of GDP to domestic material consumption and is measured in euros per tonne. Material productivity shows economic performance in relation to the environment, as increased productivity indicates that economic growth is produced despite decreased material consumption.

DMC intensity per capita assesses the distribution of resources consumed each year among all inhabitants and is calculated by dividing the domestic material consumption by the population.

Source:

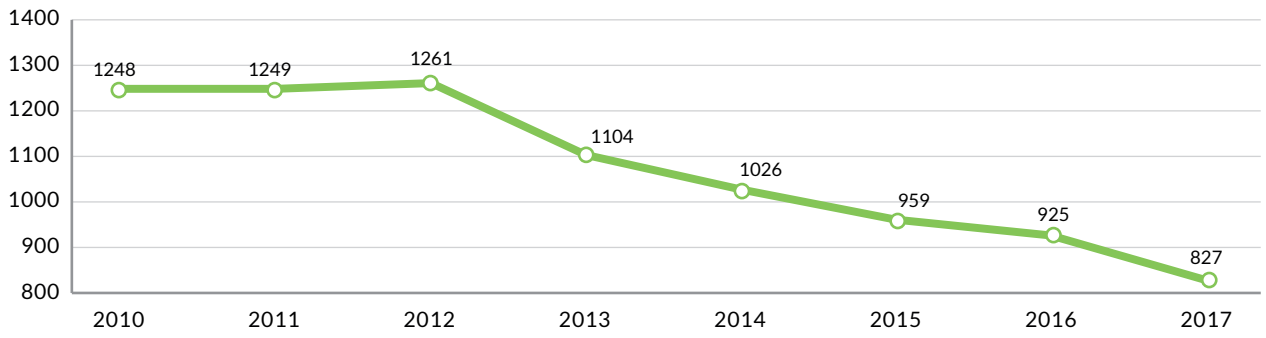
INE. Material flow accounts. Website query: INEbase/Agriculture and environment/Environmental accounts/Material flow accounts/National results. 2008–2016 Series/Main indicators of material flows

Recommended websites:

- http://www.ine.es/prensa/cma_2015_fm.pdf

Organisations listed in the **EU Eco-Management** and **Audit Scheme (EMAS)** register

Number of Spanish organisations listed in the EMAS register



Source: MITECO

- ***In 2017, a total of 827 Spanish organisations were listed in the EMAS register, 10.6 % fewer than in 2016***
- ***The autonomous communities of Catalonia, Madrid, Galicia, the Canary Islands and the Basque Country were home to 75 % of all organisations registered in Spain in 2017***
- ***Over 80 % of the organisations registered in the EU-28 hailed from only three countries: Germany, Italy and Spain***

Organisations recognised under the EU Eco-Management and Audit Scheme (EMAS) are those that have shown proof of having implemented the EU Environmental Management System, making a commitment to achieving continuous environmental improvement, and which are verified by means of independent audits.

Over 2010–2017, Spanish organisations listed in the EMAS register fell from 1 248 to 827, a decrease of 33.7 %. The review and updating of existing records in the EU database, together with the effects of the financial crisis, are part of the reason for this decrease. This situation has affected the entire EU, meaning that Spain is still among the leaders in the ranking of EU countries with organisations holding EMAS registration.

In recent years, the Spanish business environment has shown a trend towards recovery as, following the 5.2 % decrease experienced up to 2014, in 2017 the number of active companies returned to 2010 levels. According to the INE's DIRCE (Central Companies Directory), at 1 January 2017 the number of active businesses stood at over 3.28 million. This scenario suggests that the economic recovery needs to be more intense and more stable before companies once again allocate resources to environmental commitments such as management systems, since financing the costs of such commitments may not be a priority.

As regards Spain's CNAE (National Classification of Economic Activities), the 2017 data illustrate that the group of businesses devoted to service, supply, sewerage, waste management and remediation; and electricity, gas, steam and air-conditioning accounted for 69.2 % of EMAS-registered businesses. Meanwhile, companies

in the manufacturing industry made up 24.1 %. Following at some distance were firms in the construction industry, verging on 5 %, and companies in farming, forestry and fishing, with 1.3 %. Finally, mining and quarrying enterprises registered just below 0.5 %.

In 2017, five autonomous communities were home to 75 % of all organisations listed in the EMAS register in Spain: Catalonia (25.8 %), Madrid (13.7 %), Galicia (13.1 %), the Canary Islands (11.9 %) and the Basque Country (10.6 %).

At European level, in 2017, over 80 % of EMAS-registered organisations hailed from only three countries: Germany, Italy and Spain. Germany accounted for over 28 % and Italy and Spain for 26 % and 25 %, respectively, of the more than 3 300 organisations registered.

At March 2018, the EU had 1 976 licences for 69 593 products and services available on the market. Of them, 238 licences (12 %) were Spanish, ranking Spain third among countries with the most licenses in the EU-28, followed by Germany. Positioned above them were France, with the greatest number of Ecolabel licences (24.5 %), and Italy, in second place with 16 %.

As regards the number of products and services, again in March 2018, Spain took first place with 30 384 (43.7 % of the EU-28 total), followed by Italy and France, with 9 406 (13.5 %) and 4 820 (6.9 %) products and services, respectively.

Definition of the indicator:

The indicator shows the number of organisations registered at the close of the EU Eco-Management and Audit Scheme (EMAS) accounting year. Thus, the 2014, 2015, 2016 and 2017 data refer to the situation at 1 December each year.

Methodological notes:

- In Spain, Royal Decree 239/2013 of 5 April 2013 regulates implementation of Regulation (EC) No 1221/2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS).
- Commission Regulation (EU) No 2017/1505 —amending Annexes I, II and III to Regulation (EC) No 1221/2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS)— was published on 29 August 2018.
- This new Regulation requires companies to adapt their EMAS management systems before 14 September 2018, coinciding with the deadline for adapting environmental management systems to ISO 14001:2015.

Source:

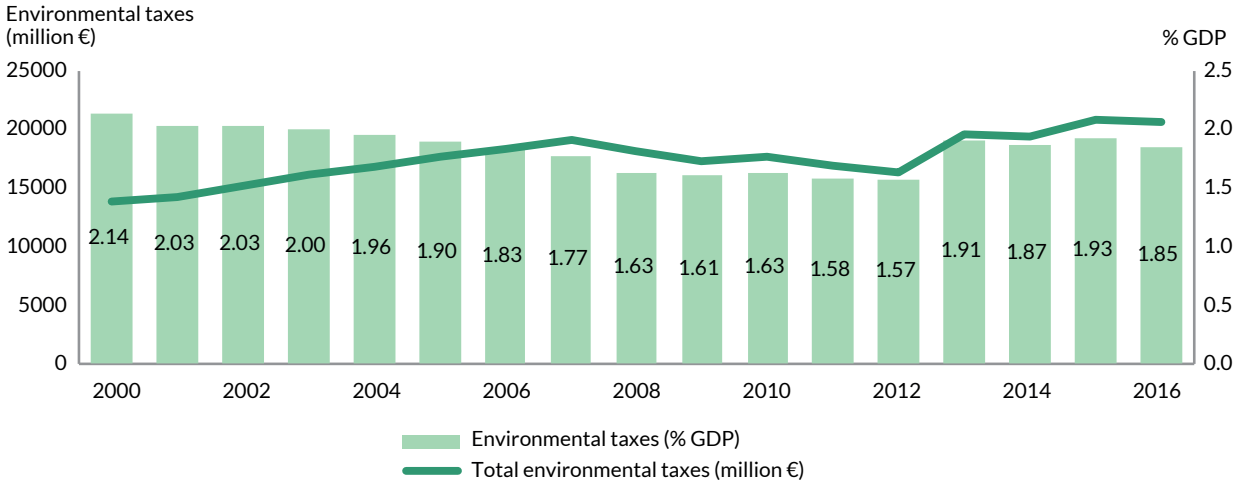
Ministry for Ecological Transition. Directorate-General for Biodiversity and Environmental Quality. Data provided on specific enquiry.

Recommended websites:

- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-comunitario-de-ecogestion-y-ecoauditoria-emas/
- http://ec.europa.eu/environment/emas/
- http://ec.europa.eu/environment/ecolabel/facts-and-figures.html

Environmental **taxes**

Environmental taxes in Spain. Total and as a % of GDP



Source: Eurostat

- ***In 2016, environmental tax revenue amounted to EUR 20.64 billion, 1 % less than in 2015***
- ***The breakdown of environmental taxes in 2016 is as follows:***
  - ***Energy: 83 %***
  - ***Pollution: 4.3 %***
  - ***Transport: 12.5 %***
  - ***Resource use: 0.2 %***
- ***In 2016, Spain contributed 5.7 % of all EU-28 environmental taxes***
- ***Environmental taxes in Spain accounted for only 1.8 % of GDP in 2016, putting Spain at the bottom of the list of European partners***

Environmental taxes are an instrument of environmental policy and are considered to be environmentally effective in, *inter alia*, mitigating climate change and promoting sustainable use of resources.

In 2016, environmental tax revenue in Spain amounted to EUR 20.64 billion, 1 % less than in 2015. Environmental taxes accounted for 8.4 % of all taxes in Spain.

With a share very similar to that of the previous year, 83 % of environmental taxes were on energy, while 12.5 % were on transport. Taxes on pollution accounted for only 4.3 %, and those derived from the use of resources amounted to merely 0.2 %.

The increased revenue from environmental taxes experienced until 2007 was followed by a period of decline that was reversed by an upturn in 2012, although fluctuations were recorded from year to year during this latest positive trend.

In 2016, just as in 2015, Spain contributed 5.7 % of the total environmental tax revenue collected by governments of EU-28 Member States, a figure amounting to EUR 364.4 billion. Spain is one of the eight countries that accounted for over 80 % of all EU environmental taxes, holding sixth position.

In 2016, environmental taxes in Spain represented merely 1.9 % of GDP, a percentage less than the EU average of 2.4 % that year. Together with Lithuania, Germany, Ireland, Slovakia and Luxembourg, Spain was one of the six EU Member States with the lowest environmental tax revenue in relation to GDP (less than 2 %), holding fourth position. By contrast, Denmark's environmental taxes accounted for 4 % of its GDP that year.

Definition of the indicator:

This indicator shows the annual value, expressed in millions of euros and as a percentage of GDP, for revenue gathered through environmental taxes.

Methodological notes:

- Regulation (EU) No 691/2011 on European environmental economic accounts constitutes the reference framework of concepts, definitions, classifications and accounting rules for drawing up the environmental accounts and, for the first time, includes a module of this account for annual transmission.
- The environmental tax account shows the breakdown into two final consumers subject to this tax rate: business and households. Environmental taxes are those whose tax base is a physical unit (or a proxy of a physical unit) of something that has a proven, specific negative impact on the environment. These include taxes on energy, transport, pollution (spills and release of pollutants into the atmosphere, for example) and on resources (including the abstraction of water, the extraction of raw materials except for oil and gas, and forest resources, *inter alia*) but exclude value added tax.

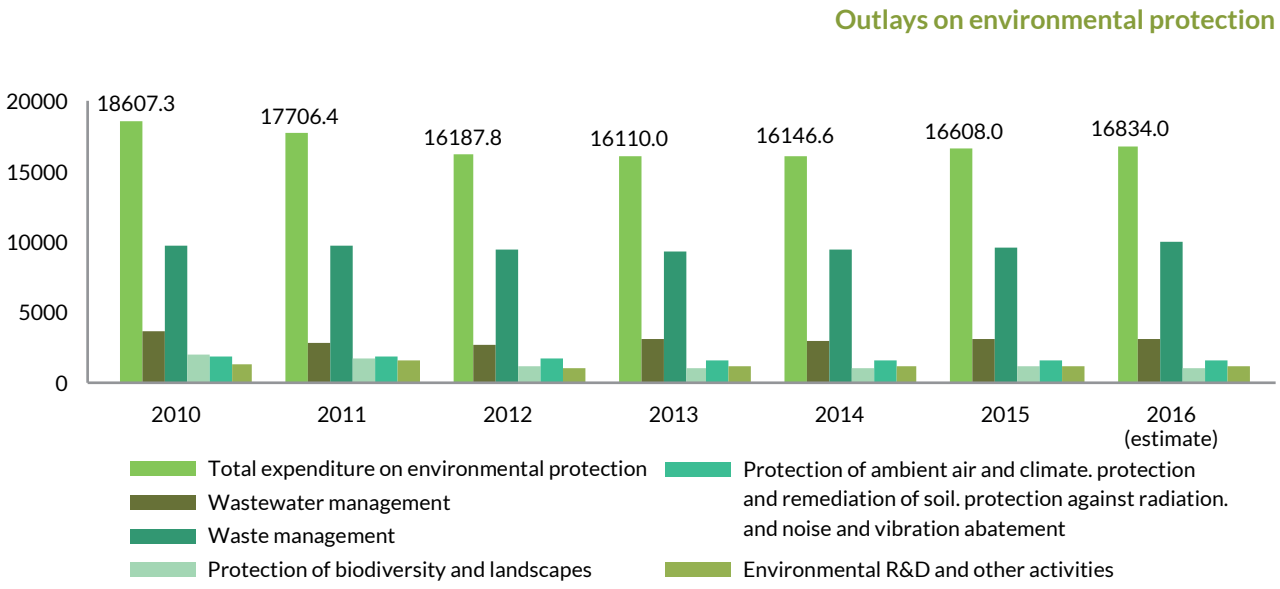
Source:

Information obtained from the Eurostat website: Available at: Data/Database by themes/Environment and energy/ Environment (env)/Environmental taxes (env_eta)/Environmental tax revenues (env_ac_tax)

Recommended websites:

- http://www.ine.es/prensa/cma_2015_ia.pdf
- http://ec.europa.eu/eurostat/statistics-explained/index.php?title=Environmental_tax_statistics

Outlays on environmental protection



Source: INE

- ***In 2016, national outlays on environmental protection in Spain amounted to EUR 16.834 billion, 1.4 % more than in 2015***
- ***In 2016, outlays on environmental protection amounted to 1.51 % of total GDP***
- ***Waste management and waste water management services, accounting for 59.3 % and 18.3 % of total outlays, respectively, comprised the environmental protection activities with the highest contribution towards total expenditure***

According to the INE's analysis of national outlays on environmental protection, the advance estimate for 2016 indicates that Spain spent EUR 16.834 billion on environmental protection, 1.4 % more than in 2015. This expenditure accounted for 1.51 % of GDP.

Over 2010–2016, there was a 9.5 % decrease, mainly seen in the first four years of that period, although the downward trend was reversed from 2014 onwards. Of environmental protection activities, only waste management showed an increase (of 2 %) in this period.

In 2016, waste management and waste water management services, accounting for 59.3 % and 18.3 % of total outlays, respectively, comprised the environmental protection activities with the highest contribution towards total expenditure. They were followed by protection of ambient air and climate, protection and remediation of soil, protection against radiation, and noise and vibration abatement, totalling 18.3 %. At the other end of the spectrum were biodiversity and landscape protection services, and R&D in environmental and other activities, with 6.3 % and 6.6 % of the total, respectively.

In 2016, national outlays on environmental protection were broken down by institutional sector as follows: 50.8 % in the non-financial corporations and financial corporations sector (EUR 8.545 billion, 5.1 % up on 2015); 33 % in general government and non-profit institutions serving households (EUR 5.554 billion, 4.5 % down on 2015); and 16.2 % in households (EUR 2.735 billion, with a 2.6 % increase compared to 2015).

In 2015, national outlays on environmental protection in the EU-28 accounted for 2.1 % of GDP.

Definition of the indicator:

The indicator shows outlays on environmental protection carried out in Spain, broken down by type of environmental protection as per the Classification of Environmental Protection Activities (CEPA 2000): waste management; waste water management; protection of ambient air and climate; protection and remediation of soil, groundwater and surface water; protection against radiation; noise and vibration abatement; research and development; protection of biodiversity and landscapes; and other environmental protection activities.

Methodological notes:

The environmental protection expenditure account shows the total economic resources used to prevent the degradation of the environment or to enable its restoration. It represents the total economic resources a nation dedicates to environmental protection.

Environmental protection includes all activities and actions which have as their main purpose the prevention, reduction and elimination of pollution and of any other degradation of the environment. Actions or activities that have a positive or beneficial impact on the environment but that are performed in response to technical, hygiene or safety requirements are excluded from the field of protection.

Regulation (EU) No 538/2014 amending Regulation (EU) No 691/2011 on European environmental economic accounts constitutes the reference framework of concepts, definitions, classifications and accounting rules for drawing up the environmental accounts and includes a module of this account for annual transmission.

Source:

INE, 2018. Environmental protection expenditure account. Taken from the website: INEbase/Agriculture and environment/ Environmental accounts/Expenditure on environmental protection/Results/National results. Serie 2010-2016/Gasto nacional en protección ambiental/ 1.1 Gasto nacional en protección ambiental por ámbito de protección ambiental, estructura porcentual y tasas de variación interanuales [in Spanish]

Recommended websites:

- http://www.ine.es/prensa/cma_2016_gpm.pdf
- http://ec.europa.eu/eurostat/statistics-explained/index.php?title=Environmental_protection_expenditure_accounts

2.9 ENVIRONMENTAL RESEARCH, DEVELOPMENT AND INNOVATION

Research, development and innovation policies are a core element of any high-quality competitive, sustainable growth model.

Spain's National Science, Technology and Innovation Plans are the main instruments to achieve the goals set out in the 2013–2020 Spanish Strategy for Science, Technology and Innovation, and in the Europe 2020 strategy. These instruments include specific actions to implement so that R&D and innovation can effectively fulfil its essential role in long-term growth, job creation, and improved productivity and competitiveness in Spain's economy. Following the 2013–2016 National Plan for Science and Technology Research and Innovation, the Council of Ministers approved the 2017–2020 National Plan for Science and Technology Research and Innovation in December 2017. Its main goal is to improve the management and planning of state funding of R&D and innovation for Spain's science, technology and innovation system. This Plan includes a new governance model to improve its effectiveness and contains an R&D and innovation investment plan that is scheduled through to 2020 to achieve the Strategy's goals.

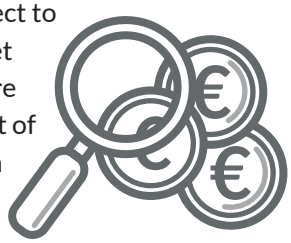
In 2017, the existing programmes to support private investment for R&D and innovation were maintained and consolidated, and cooperation with the regional governments was encouraged. The Red Cervera network has also been set up as a tool that technology centres and institutes can use to heighten their research capabilities —especially in breakthrough technologies— with the aim of strengthening public-private partnership and directing efforts towards identifying the needs of companies and applying R&D and innovation in the real economy.

National budget for environmental R&D and innovation

- The 2018 budget for environmental programmes was the same as that for 2017, accounting for 3.22 % of the total R&D and innovation policy.

Public financing for environmental R&D

- In 2016, the percentage of the budget allocated to Spain's environmental objective with respect to the final R&D budget was 3.6 %. This figure was higher than that of the European Union as a whole, which was 2.4 %.

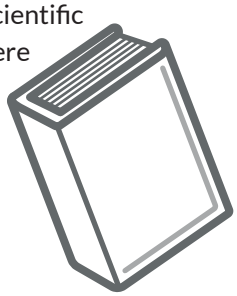


Corporate environmental R&D

- The number of environmentally active companies doing R&D (around 80) has remained relatively constant in recent years.
- R&D spending in energy and water supply companies has dropped to EUR 131 million, but has increased to EUR 24 million in waste management and remediation companies.

Bibliometric indicators for environmental science

- In 2016, 7 % of all scientific publications in Spain were related to the field of environmental science. There was a total of 6 086 documents.

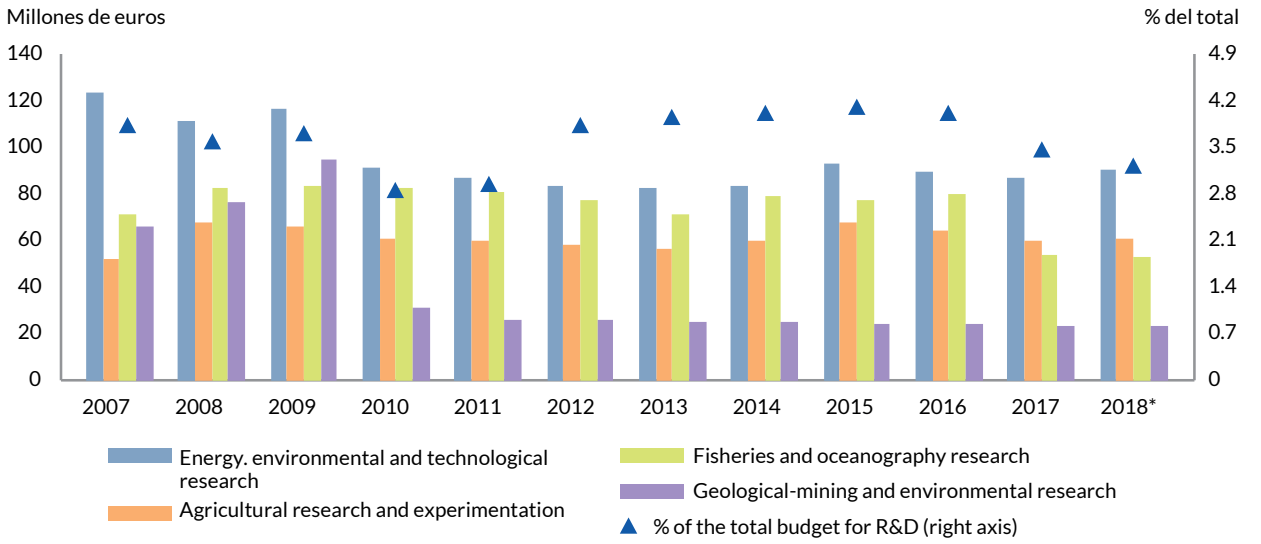


Patents on environment-related technologies

- 12 % of Spanish patents are related to the environment, a figure that is slightly higher than the EU average.

National budget for environmental R&D and innovation

Budget for environmental research programmes (million €)



Source: FECYT, compiled with data from the Ministry of Science, Innovation and Universities.

- ***The 2018 budget for environmental programmes was the same as that for 2017, accounting for 3.22 % of the total R&D and innovation policy***

The allocation from the General State Budgets to research, development and innovation policy is grouped under expenditure policy 46. Within this policy, there are programmes that promote scientific research in general, and others that support research in more specific sectors such as the environment. The environmental programmes, which are listed according to their budget allocation for 2018, cover the following areas: energy, environmental and technological research; fisheries and oceanography research; agricultural research and experimentation; and geological-mining and environmental research.

The budget for these environmental programmes in 2018 was the same as in 2017, although the programme for energy, the environment and technology received more funding. Taken together, these programmes accounted for 3.22 % of the total research, development and innovation policy for 2018, a figure that has been falling since 2015.

Definition of the indicator:

The indicator shows the annual forecast for public sector expenditures in the four groups of environmental spending programmes: 467D Agricultural research and experimentation; 467E Fisheries and oceanography research; 467F Geological-mining and environmental research; and 467H Energy, environmental and technological research.

Methodological notes:

The figure for 2018 is taken from the draft law on the General State Budget.
Programmes that promote scientific research in general may also fund research related to the environment. Therefore, this indicator offers a partial view of the budget for environmental R&D and innovation.

Source:

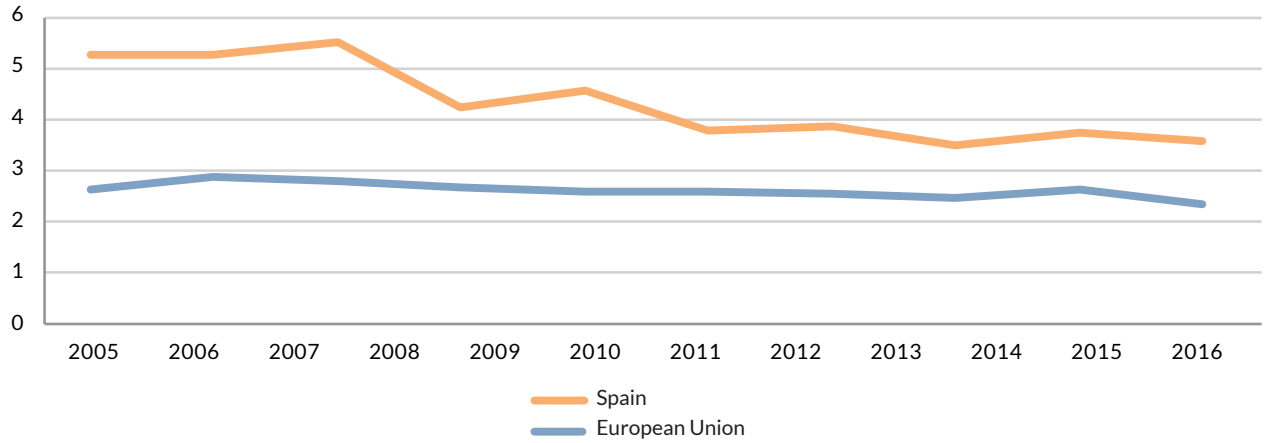
ICONO (Spanish R&D and Innovation Observatory) at the FECYT (Spanish Foundation for Science and Technology), using data compiled from the General State Budgets, which are published by the Ministry of Finance.

Recommended websites:

- https://icono.fecyt.es/indicadores
- http://www.sepg.pap.minhafp.gob.es/sitios/sepg/es-ES/Presupuestos/Paginas/MenuSitio.aspx

Public financing for **environmental R&D**

R&D budget for the environmental socioeconomic goal with respect to the final R&D budget (%)



Source: Eurostat

- ***In 2016, the percentage of the budget that was allocated to Spain's environmental goal with respect to the final R&D budget was 3.6 %. This figure was higher than that of the European Union as a whole, which was 2.4 %***

The information provided by EUROSTAT on R&D budgets offers a complementary view to the General State Budgets on public funding for R&D. European statistical data include the final budget, including modifications that either increase or decrease the amount of the initial items that central and regional governments allocate to R&D, but they do not include spending on other innovation activities.

One of the purposes of these data is to provide information on R&D that is financed to achieve the socioeconomic goals, one of which is the environment. In Spain, 3.6 % of the budget was allocated to the environmental goal with respect to the final R&D budget for 2016. This figure was higher than that of the European Union as a whole, which was 2.4 %. However, since 2007, the importance of the environmental goal in public funding for R&D has diminished both in Spain and in the European Union, although it is more noticeable in Spain.

Definition of the indicator:

The indicator shows the percentage of the final budget allocated to R&D by government (central and regional governments) with respect to the total budget (GBAORD Statistic: Government budget and appropriations or outlays for R&D). It also covers both the budgets adopted by parliaments at the beginning of the budget year (initial appropriations) and the final budgets, revised and approved during the budget year (final appropriations).

Methodological notes:

The socioeconomic goal of a project does not always reflect its content. For example, a defence project to supply energy to remote locations has a military objective, even though its content may be energy-related.

Source:

Eurostat: Science and technology statistics. GBAORD Statistic (Government budget appropriations or outlays on R&D). Taken from the website: Database by themes/Science, technology, digital society/Science and technology (scitech)/ research and development (research)/ Government budget appropriations or outlays on R&D (gba)/ Total GBAORD by NABS 2007 socioeconomic objectives (gba_nabsfin07).

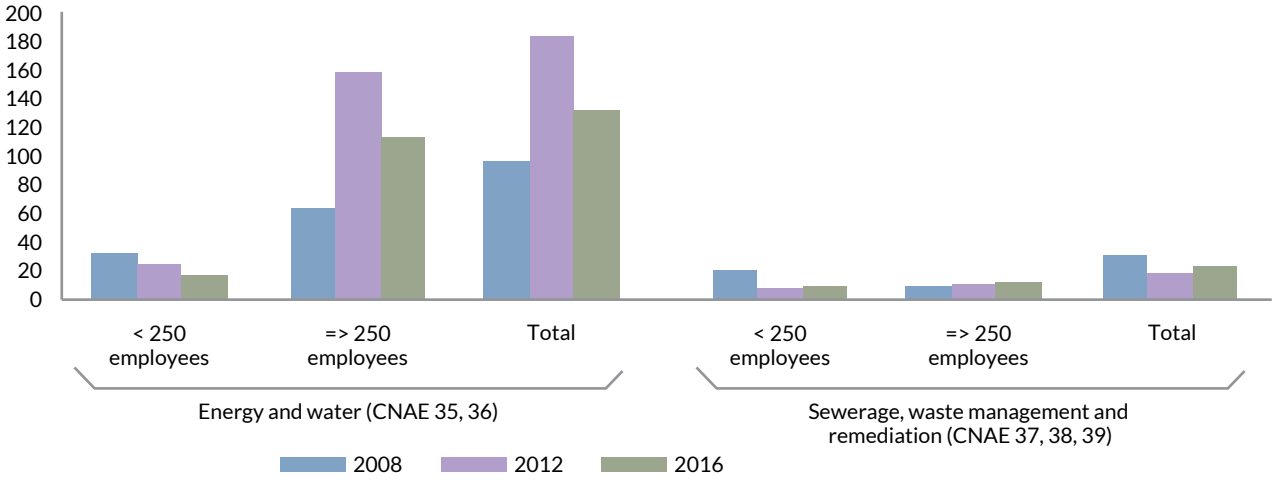
Recommended websites:

- http://ec.europa.eu/eurostat/web/main/home

Corporate environmental **R&D**

Number of environmentally active companies doing R&D

Internal R&D spending by environmentally active companies (million €)



Source: INE

- ***The number of environmentally active companies doing R&D (around 80) has remained relatively constant in recent years***
- ***R&D spending in energy and water supply companies has dropped to EUR 131 million, but has increased to EUR 24 million in waste management and remediation companies***

The statistics on R&D activities published by Spain's INE each year show the scientific research and technology development performed across all economic sectors, including business. Corporate activities related to the environment are grouped into two categories: energy and water supply, and waste management and remediation.

The total number of energy and water supply companies doing R&D fell between 2008 and 2012, and then rose again until 2016, when the 2018 figures were reached (around 80 companies). There has been a decrease in the number of SMEs doing R&D, although the number of large enterprises performing it is growing.

In addition, the number of waste management and remediation companies doing R&D fell significantly between 2008 and 2012 (mainly SMEs), although since then it has remained stable at around 75 companies.

With respect to internal R&D spending, expenditures by energy and water supply companies more than doubled between 2008 and 2012, but then dropped significantly to EUR 131 million in 2016. This trend has been strongly influenced by the expenditures of large enterprises, which account for the bulk of the total. Spending by waste management and remediation companies fell between 2008 and 2012, and then rose to EUR 24 million in 2016.

Definition of the indicator:

R&D spending by companies included in the following CNAE 2009 categories, grouped into those with either fewer or more than 250 employees. The following CNAE 2009 groups are studied:

- Energy and water supply
  - 35 Electricity, gas, steam and air-conditioning supply.
  - 36 Water abstraction, treatment and supply.
- Waste management and remediation
  - 37 Waste water collection and treatment
  - 38 Waste collection, treatment and disposal; recovery.
  - 39 Remediation activities and other waste management services.

The number of companies studied is also included.

Methodological notes:

Only companies classified in groups D and E of the CNAE 2009 have been studied: Electricity, gas, steam and air-conditioning supply; and water supply; sewerage, waste management and remediation activities. This indicator only covers part of the corporate efforts in environmental R&D, given that enterprises in other industries may carry out similar R&D activities.

Source:

INE. R&D statistics. See: INEbase/Science and technology/Research and development/Statistics on R+D Activities

Recommended websites:

- http://www.ine.es/welcome.shtml

Bibliometric indicators **for environmental science**

Main bibliometric indicators for environmental science

Year	Number of documents	Cited documents	% international collaboration	% worldwide	Spain's position in the world ranking by number of documents
2006	2 811	2 770	36.7	3.3	10
2007	2 970	2 907	37.4	3.2	11
2008	3 413	3 364	37.3	3.6	10
2009	3 688	3 627	37.9	3.5	10
2010	4 170	4 090	40.3	3.8	10
2011	4 600	4 508	43.5	3.8	10
2012	4 915	4 761	43.9	3.9	9
2013	5 062	4 956	47.2	3.8	9
2014	5 410	5 294	49.6	3.8	9
2015	5 578	5 424	52.4	3.9	8
2016	6 086	5 869	55.1	3.9	9

Source: SJR — SCImago Journal & Country Rank. Data compiled from SCOPUS.

Number of documents in the environmental science category

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Ecological modelling	78	113	96	127	136	154	142	168	156	162	160
Ecology	669	705	763	807	873	995	993	1 040	1 086	1 129	1 193
Environmental chemistry	647	762	852	844	903	983	1 080	1 129	1 175	1 265	1 460
Environmental engineering	350	418	548	622	697	746	932	751	898	887	1 005
Environmental science (miscellaneous)	348	437	481	514	610	684	756	820	935	895	949
Global and planetary change	75	82	92	123	175	167	239	224	301	374	375
Health, toxicology and mutagenesis	252	245	307	416	416	432	372	431	453	453	519
Management, monitoring, policy and law	217	235	298	341	434	507	635	696	692	779	828
Nature and landscape conservation	205	192	245	244	310	339	317	374	412	407	450
Pollution	437	510	595	711	727	819	883	1 000	1 001	1 066	1 311
Waste management and disposal	277	365	464	574	571	612	699	661	706	723	938
Water science and technology	643	619	654	720	746	831	837	820	779	847	971

Source: SJR — SCImago Journal & Country Rank. Data compiled from SCOPUS. Consulted in May 2018

- ***In 2016, 7 % of all scientific publications in Spain were related to the field of environmental science. There was a total of 6 086 documents***

Bibliometric indicators provide a multidimensional perspective on the quantity and quality of Spain's scientific output in a given period; in this case, in topics related to environmental science.

In 2016, the number of Spain's scientific documents or publications in environmental science totalled 6 086, which represents 7 % of the overall number. Spain's scientific output in this subject has grown by an average of 8 % annually since 2006. Furthermore, more than half of these documents were published with international collaboration (55.1 %), while in 2006 the share was 36.7 %.

As for the categories that comprise environmental science, in 2016 environmental chemistry produced the largest volume, followed by pollution, ecology and environmental engineering. These four research categories account for almost 50 % of the total number of publications. Over the last 10 years, the fastest-growing category has been global and planetary change, which went from 75 documents in 2006, to 375 in 2016.

Definition of the indicator:

The main bibliometric variables used to evaluate scientific output include the number of documents published in specialised journals, the total number of documents cited at conferences and in journal articles, the percentage of the output published in partnership with foreign institutions, the percentage of a country or institution's output with respect to total world output of expert documents, and the position in the world ranking according to volume of output.

Methodological notes:

- Number of documents: Total number of documents published during the year in journals included in SCOPUS.
- Cited documents: Documents cited during the year, including articles, journals and conference papers.
- Percentage of international collaboration: Percentage of output published during the year in partnership with foreign institutions. To calculate this indicator, documents that include more than one institution —and at least one from a foreign country— are considered.
- World percentage: The percentage of a country or institution's output compared to total world output during the same period and in the same field.
- World ranking: Position in the world ranking according to volume of output.

Source:

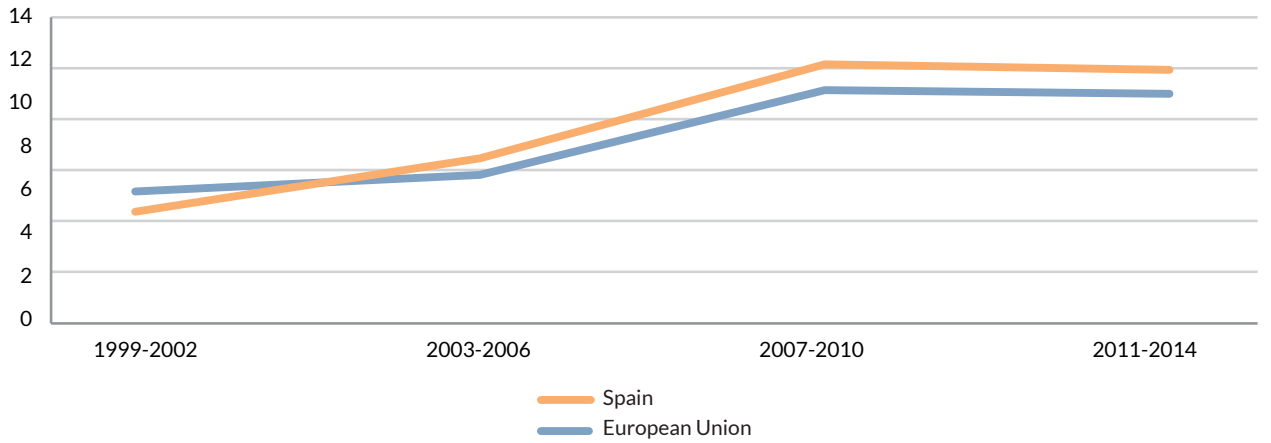
Prepared with information from SCImago Journal & Country Rank (SJR) using data compiled from SCOPUS.

Recommended websites:

- http://www.scimagojr.com/

Patents on environment-related **technologies**

PCT patent applications on environment-related technologies (% of total patents)



Source: OECD

- ***12 % of Spanish patents are related to the environment, a figure that is slightly higher than the EU average***

The number of patents listed by the Organisation for Economic Co-operation and Development (OECD) is an indication of a country's creative activity and inventive capacity in a wide range of technologies. Based on the standard classifications of these technologies and the experience of the patent examiners at the European Patent Office (EPO), the OECD has compiled aggregates that identify technologies related to a particular area such as the environment.

Around 12 % of Spanish patents are related to the environment, a figure that is slightly higher than that of the EU as a whole. The trend in this percentage follows a similar pattern in both Spain and the European Union: the figure has remained stable in recent years following significant growth between 2007 and 2010.

Spain's contribution to the total number of EU-28 environmental patents in 2014 was 4 %. With respect to the total number of patents, Spain's contribution was 3.5 % for the same year.

Definition of the indicator:

The indicator shows the number of Patent Cooperation Treaty (PCT) patent applications in the international phase registered by the EPO.

Methodological notes:

The inventor's country and the priority date are collected. If the patent has inventors from several countries, then the fraction of Spanish inventors is counted.

Source:

The OECD's industrial property database, with data compiled from the EPO. OECD.Stat. Patents by technology: Patent applications under PCT/inventor country residence/Priority date/Total or select environment-related technologies. https://stats.oecd.org/Index.aspx?DataSetCode=PATS_IPC#

Recommended websites:

- http://www.oecd.org/sti/intellectual-property-statistics-and-analysis.htm#ipdata

2.10 WASTE

In the transition to a more sustainable and circular economy, minimising waste generation and maintaining the value of products, materials and resources for as long as possible are absolutely key. The European Commission is aware of this and has incorporated a proposal to revise the Waste Framework Directive (Directive 2008/98/EC) in its new Circular Economy Action Plan for 2018–2020. This proposal sets new targets for 2030, thus continuing the efforts already being made to achieve the goals set for 2020.

Spain has made progress in its own waste management during the last 20 years, as evidenced by the reduction in municipal waste generation and the increased recycling rate. The latter is especially true for waste electrical and electronic equipment, most notably since the passing of Royal Decree 110/2015. Improving waste management and exploiting the potential of the circular economy is one of the main environmental challenges we face, as indicated in the first Environmental Implementation Report on Spain, which was published by the European Commission in February 2017.

In 2017, the government invested EUR 7 million in implementing the 2016–2022 National Framework Plan for Waste Management, which makes waste prevention the top priority, followed by reuse, recycling and other forms of recovery. The final option in the waste management hierarchy is landfill, the same as in the PIMA Waste plan.

Moreover, within the Coordination Commission on Waste, Spain's national and regional governments have agreed on implementing a landfill and waste incineration tax that is the same throughout the country. This measure will help discourage these two activities, thus encouraging the recovery of various waste streams. Meanwhile, Navarre has already adopted its 2017–2027 Waste Plan, and progress has been made towards updating the plan for the Basque Country and towards drafting plans for Ceuta and Melilla.

This year, the government approved the 2017–2019 National Waste Shipment Inspection Plan, thus complying with the new requirements laid down in Regulation (EU) No 660/2014 amending Regulation (EC) No 1013/2006 on shipments of waste.

Similarly, Royal Decree 20/2017 on end-of-life vehicles has been passed, and Annex I is currently being amended to adapt it to Directive (EU) No 2017/2096.

Administrative procedures throughout 2017 have enabled the recent passing of Royal Decree 293/2018 on reducing plastic carrier bag consumption and creating the Register of Producers. This Royal Decree incorporated Directive (EU) No 2015/720 into Spanish law, while establishing a mandatory minimum charge for plastic bags and prohibiting the use of non-compostable bags from 2020 onwards. This measure is an integral part of the EU's strategy for plastics in a circular economy, which has set the medium-term goal of making all plastic packaging recyclable by 2030. Spain is thus making progress on a high-priority waste issue, given the proliferation and declining recycling rate of plastics, as well as their potential impact on the environment and health. The seriousness of plastic waste was demonstrated by the fact that the theme of World Environment Day 2018 focused on the fight against plastic pollution.

Nevertheless, the key player in preventing and correctly managing waste is the general public, through responsible plastic consumption and the proper identification and separation of plastic waste. Initiatives such as the European Week for Waste Reduction, which is held every year between 17 and 25 November, aim to raise public awareness of waste prevention, reuse and recycling.

Municipal waste generation

- In 2016, Spain generated 20.6 million tonnes of municipal waste, which is equivalent to 443 kg of waste per capita per year.
- Per capita waste generation in Spain decreased by 32 % between 2000 and 2016, while the EU-28 average decreased by 7.8 %.

Municipal waste treatment

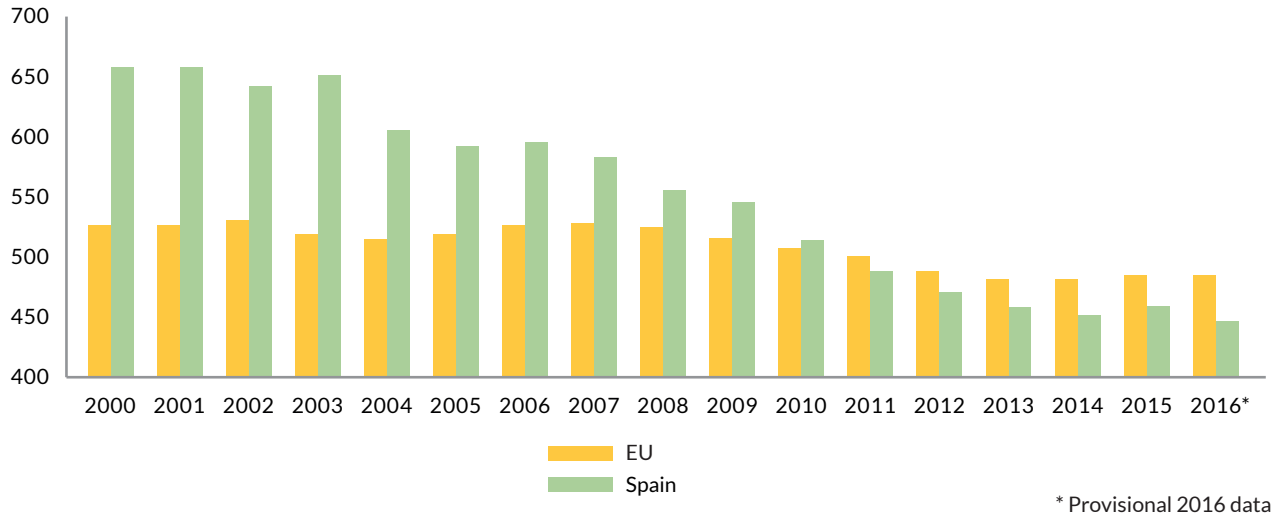
- In 2016, more than half of the municipal waste generated in Spain (57 %) was landfilled (20 % as direct landfill and 37 % as reject waste from other treatment facilities), 18 % was recycled, 11.5 % composted and 13 % incinerated.
- Since 2000, municipal waste recycling and incineration rates in Spain have doubled.
- In 2016, the European Union was only 3 percentage points away from the 50 % waste recovery target set for 2020. In Spain, 30 % of waste is recovered.

Packaging waste recycling and recovery

- In 2016, generation of packaging waste increased by 1 %.
- Recycling and energy recovery rates for packaging waste (70.3 % and 76.8 % respectively) reached an all-time high in 2016.
- Spain is already on track to achieving the common target for recycling 70 % of packaging waste, which was set by the EU for 2030, although it remains to be seen how the recently adopted change in methodology will affect this at Community level.

Municipal waste **generation**

Municipal waste generation per capita (kg/capita)



* Provisional 2016 data
Source: Eurostat

- ***In 2016, Spain generated 20.6 million tonnes of municipal waste, which is equivalent to 443 kg of waste per capita per year***
- ***Per capita waste generation in Spain decreased by 32 % between 2000 and 2016, while the EU-28 average decreased by 7.8 %***

According to data provided by Eurostat, Spain generated 20.6 million tonnes of municipal waste in 2016, which represented 8.3 % of the total waste generated in the European Union. In 2016, the average municipal waste generated per capita in Spain stood at 443 kg, which is significantly lower than the figure for the European Union as a whole (482 kg). Within the ranking of EU countries that generated the least waste per capita in 2016, Spain ranked tenth, alongside Sweden and ahead of countries like the United Kingdom, France and Germany.

Analysis of the trend in municipal waste generation in Spain since 2000 shows that the country has made a major effort, primarily from 2003 to 2013, with a 32 % decrease in the average amount of waste produced per capita. As a result, it has managed not only to meet the EU average but to beat it. Since 2013, national waste generation per capita has stabilised.

Definition of the indicator:

Estimated annual amount of municipal waste generated per capita.

Methodological notes:

- The category of municipal waste, as defined by the statistical office of the European Union (Eurostat), comprises waste collected directly by municipal services, or by similar services contracted by local councils. Most of this waste stream comes from households, although waste from similar sources (such as retail outlets, offices and public institutions) may also be included, according to the provisions of municipal regulations. The indicator also includes waste electrical and electronic equipment, clothing, batteries, furniture and household goods, but excludes waste and rubble from small-scale construction work and household repairs, which is where it differs from the concept of municipal waste under Spanish legislation.
- When the indicator was updated, the 2016 data provided by Eurostat were listed as 'estimates' and are therefore likely to be corrected in the future. It should also be noted that the data for Ireland and Portugal are missing.
- In 2013, the European Union increased to 28 Member States following the accession of Croatia. The European Union dataset provides EU-27 figures prior to 2013 and EU-28 data from that year onwards.

Source:

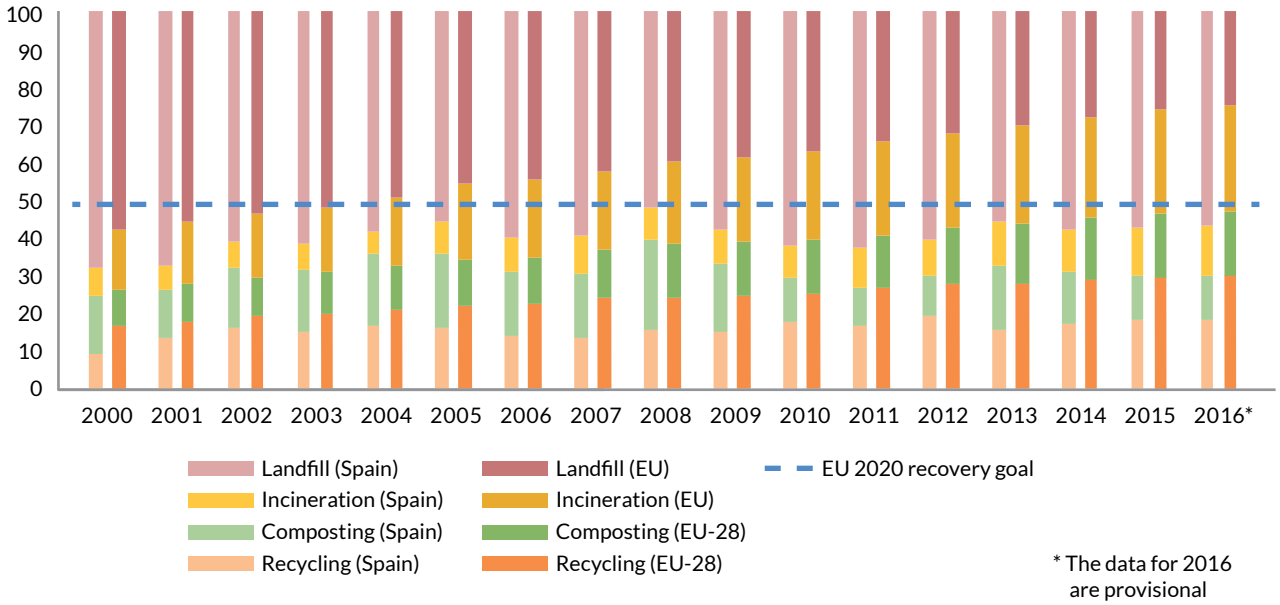
Eurostat: "Municipal waste [env_wasmun]". Information obtained from the Eurostat website: Eurostat/Data/Database/Tables

Recommended websites:

- http://ec.europa.eu/eurostat/web/waste/transboundary-waste-shipments/key-waste-streams/municipal-waste

Municipal waste **treatment**

Waste treatment rates in the EU and Spain



* The data for 2016 are provisional

Source: Eurostat

- ***In 2016, more than half of the municipal waste generated in Spain (57 %) was landfilled (20 % as direct landfill and 37 % as reject waste from other treatment facilities), 18 % was recycled, 11.5 % composted and 13 % incinerated***
- ***Since 2000, municipal waste recycling and incineration rates in Spain have doubled***
- ***In 2016, the European Union was only 3 percentage points away from the 50 % waste recovery target set for 2020. In Spain, 30 % of waste is recovered***

According to Eurostat estimates, in 2016 all municipal waste generated in Spain (20.6 million tonnes) was treated in some way: 57 % was landfilled, 18 % recycled, 14 % incinerated and 12 % taken to composting plants. These figures are virtually the same as those for 2015. However, there has been an overall improvement in waste management in the medium term. Since 2000, the proportion of landfill has fallen (from 68 % to 57 %) with a shift towards recycling and incineration, which have nearly doubled: the former rising from 9 % to 18 %, and the latter from 16 % to 28 %. In contrast, composting has progressed at an irregular rate and does not show significant growth.

Despite this, historical data on municipal waste treatment rates show that Spain has lagged behind the European Union as a whole, which has annually increased its recycling, composting and incineration rates over the proportion of waste shipped to landfill sites.

According to the targets set by the European Union, half of all waste generated should be recovered through composting and recycling by 2020. Although the EU-28 as a whole is close to reaching this target (with 47 % waste recovery in 2016), the recovery rate in Spain was only 30 %.

However, it is worth noting that the recycling rate in Spain is higher for certain types of waste, which already meet Community targets. One example of this is packaging, the data for which are shown in the next indicator.

Definition of the indicator:

Proportion of each type of treatment (recycling, composting, incineration and landfill) compared to the total waste treated.

Methodological notes:

- The category of municipal waste, as defined by the statistical office of the European Union (Eurostat), comprises waste collected directly by municipal services, or by similar services contracted by local councils. Most of this waste stream comes from households, although waste from similar sources (such as retail outlets, offices and public institutions) may also be included, according to the provisions of municipal regulations. The indicator also includes waste electrical and electronic equipment, clothing, batteries, furniture and household goods, but excludes waste and rubble from small-scale construction work and household repairs, which is where it differs from the concept of municipal waste under Spanish legislation.
- The waste recovery targets set by the European Union include as recovered waste all waste that is recycled, composted and processed through anaerobic digestion.
- When the indicator was updated, the 2016 data provided by Eurostat were listed as 'estimates' and are therefore likely to be corrected in the future. It should also be noted that the data for Ireland and Portugal are missing.
- In 2013, the European Union increased to 28 Member States following the accession of Croatia. The European Union dataset provides EU-27 figures prior to 2013 and EU-28 data from that year onwards.

Sources:

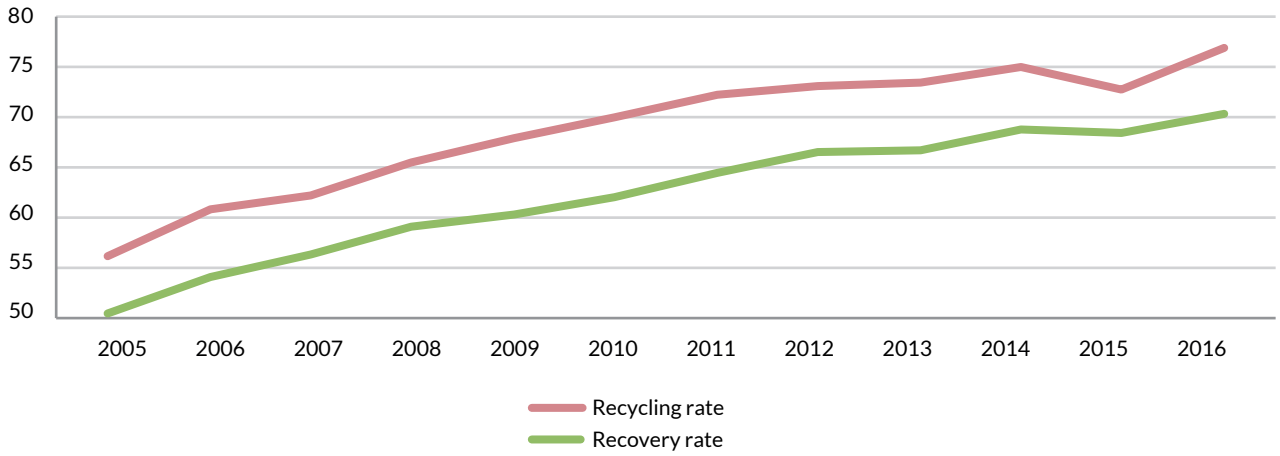
- Eurostat: Municipal waste by waste operations [env_wasmun]. Available at: http://ec.europa.eu/eurostat/web/products-datasets/-/env_wasmun

Recommended websites:

- https://www.eea.europa.eu/soer-2015/countries-comparison/waste
- http://www.europarl.europa.eu/news/en/press-room/20180227IPR98710/circular-econom y-meps-back-plans-to-boost-recycling-and-cut-landfilling
- http://ec.europa.eu/environment/waste/framework/targets.htm

Packaging waste recycling and recovery

Overall packaging waste recycling and recovery rate (%)



Source: MITECO

- ***In 2016, generation of packaging waste increased by 1 %***
- ***Recycling and energy recovery rates for packaging waste (70.3 % and 76.8 % respectively) reached an all-time high in 2016***
- ***Spain is already on track to achieving the common target for recycling 70 % of packaging waste, which was set by the EU for 2030, although it remains to be seen how the recently adopted change in methodology will affect this at Community level***

In 2016, packaging waste totalled 7 230 654 tonnes, of which almost half came from paper and cardboard (49 %), one fifth from plastic (21.1 %) and one fifth from glass (20.3 %). Compared to 2015, slightly more packaging waste was generated in 2016, both overall (1 %) and for the different categories of packaging materials. The only type of waste that showed a decrease in production was metal waste (-5 %).

However, there was an improvement in waste management: the quantities treated through recycling and energy recovery increased by 5 % and 7 % respectively. This has made it possible not only to reverse the decline in recycling and energy recovery rates for these materials in 2015, but also to raise them to their all-time high: 70.3 % for recycling and 76.8 % for energy recovery. The trend in the overall packaging waste recycling and recovery rates is shown in the chart on the following page.

Regarding the different categories of packaging materials, the quantities recycled increased in all the groups, with the greatest rise occurring in glass packaging. Metal packaging had the highest recycling rate in 2016 (82.62 %), while plastic packaging had the lowest (45.4 %). This is the only type of packaging waste that still does not meet the EU's 2025 targets, although it is fewer than 5 percentage points away from it.

It is therefore foreseeable that Spain will comfortably meet European expectations for packaging waste recycling. In fact, it has already achieved the common EU target for recycling 70 % of packaging waste by 2030.

The energy recovery rate for packaging also increased in all groups except 'other materials', with the largest increases occurring in paper and cardboard (six percentage points) and in glass (four percentage points).

Of the 5 554 943 tonnes recycled in 2016, 43 % came from foreign imports. As such, 37 % of paper and cardboard and 12 % of glass that was recycled in Spain was imported.

In addition, in 2016, 28.5 % of the paper and cardboard packaging generated, 3 % of the glass and 4 % of the plastic was exported and recycled in other countries.

Packaging waste generated, recycled and recovered

MATERIAL	Packaging waste generated (t)		Packaging waste recycled (t)		Packaging waste recovered (for energy value) (t)		Recycling rate (%)		Recovery rate (%)	
	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
Glass	1 425 669	1 465 422	943 483	1 052 201	1 003 547	1 091 359	70.39	71.80	70.39	74.47
Plastic	1 474 731	1 526 347	649 343	693 935	901 043	943 775	44.03	45.46	61.10	61.83
Paper and cardboard	3 550 000	3 544 000	2 731 486	2 824 000	2 754 966	2 969 926	76.94	79.68	77.60	83.80
Metals	393 620	379 349	314 522	313 409	314 522	313 409	79.91	82.62	79.91	82.62
Wood	298 047	301 378	195 136	202 288	226 590	235 920	65.47	67.12	76.02	78.28
Other	11 947	14 157	0	0	506	555	0.00	0.00	4.24	3.92
TOTAL	**7 154 014**	**7 230 654**	**4 833 970**	**5 085 833**	**5 201 174**	**5 554 943**	**68.41**	**70.34**	**72.70**	**76.82**

Source: MITECO

Definition of the indicator:

The indicator shows the quantities, in tonnes, of packaging waste generated and processed through recycling and energy recovery, and it also indicates the relative rates of these treatments.

Methodological notes:

- The indicator provides data on packaging waste as defined in Directive 94/62/EC on packaging and packaging waste, including sales or primary packaging, grouped or secondary packaging, and transport or tertiary packaging.
- The recycling and recovery rates are obtained by calculating the tonnage recycled and recovered (including incineration with energy recovery) as a proportion of the total packaging waste produced (equivalent to packaging placed on the market).
- The recycling rates for imported packaging have been calculated as the ratio between the amount of packaging recycled from third countries and EU Member States and the total amount of packaging recycled.

Sources:

- Data provided by the Subdirectorate-General for Waste. Directorate-General for Biodiversity and Environmental Quality. Ministry for Ecological Transition.

Recommended websites:

- http://www.consilium.europa.eu/en/press/press-releases/2018/05/22/waste-management-and-recycling-council-adopts-new-rules/
- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/prevencion-y-gestion-residuos/flujos/envases/

2.11 AGRICULTURE

By adopting the goals set out in the 2030 Agenda on sustainable development and those in the Paris Agreement on climate change, the international community has been encouraged to take responsibility for creating a more sustainable future, a situation that is reflected in the report titled The State of Food and Agriculture, 2016 issued by the Food and Agriculture Organization of the United Nations (FAO).

Accomplishing the transition towards a more sustainable agricultural model poses a major challenge. Europe, for climatic and historical reasons, is home to a wide range of agricultural production models, which means that proposed policies and measures must be sensitive to ecosystem diversity, climate change and other risks, while encouraging the development of resilient and sustainable farming systems.

The Common Agricultural Policy (CAP) has helped make the European Union (EU) one of the world's leading agricultural powers by providing a secure supply of agricultural products that meet the highest health and environmental standards and sustainability criteria.

During the conference Building the CAP of the Future, Post-2020 (held on 27 and 28 March 2017), the future role that Spanish agriculture will play in Europe after the CAP Horizon 2020 was discussed by considering different regional, sectoral and sustainability perspectives. Regional government officers, as well as stakeholders from the agri-food sector and environmental organisations all took part in the conference. One of the main findings, which was presented at the Sectoral Conference on Agriculture and Rural Development, was that ‘the CAP will have to take on new

challenges, such as world population growth, environmental preservation and the fight against climate change'. As a result of these reflections, a proposal was drawn up regarding Spain's position on the European Commission's initiative to modernise and simplify the CAP.

Organic production is an agri-food management and production system that combines the best environmental practices with a high level of protection for biodiversity and natural resources, as well as the application of high animal welfare standards. Introducing these sustainable agricultural practices can lead to significant improvements in food security and resilience to climate change. According to Eurostat, the area allocated to this kind of production increased by 2.5 % over the last year, totalling over two million hectares. These data reveal that Spain is number one in the European Union by share of agricultural area and among the five largest producers in the world.

In 2018, the Organic Production Strategy 2018–2020 was published as a way to promote this agri-food production system and to adapt it to market circumstances and trends. Supporting the growth and development of organic production, with special emphasis on organic livestock farming and the industrial sector, is one of the four overall goals set out in the Strategy.

Integrated biological control methods, and other techniques that reduce the use of chemicals, make maximum use of natural resources and production mechanisms to grow crops, thus ensuring agriculture's long-term sustainability. According to the report *Resumen de los Datos sobre la Producción Integrada* (Summary of Data on Integrated Production), the area dedicated to integrated production in Spain totalled 832 991 hectares in 2014. Andalusia, with 543 400 hectares, was the autonomous community with the largest number of hectares allocated to integrated production in 2016.

Fertiliser consumption

- Total fertiliser consumption (as a commercial product) increased by 3.5 % during the 2016/2017 agricultural year.
- In the 2016/2017 agricultural year, average consumption per hectare of fertilisable area in Spain was 121.7 kg/ha.
- Valencia and the Canary Islands accounted for the highest fertiliser consumption during the last agricultural year, consuming 266 kg/ha and 242.7 kg/ha respectively.

Organic crop farming

- Organic crop farming is becoming an increasingly important production system in the Spanish food sector.
- In 2016, organically farmed land totalled 2 018 803 hectares, while dehesas, with 295 908 hectares, comprised 14.6 % of total organic area.
- Andalusia, Castile-La Mancha and Catalonia represented just over 75 % of organic area in Spain.

Irrigated area

- In 2017, 14.8 % of total agricultural area in Spain was irrigated.
- Localised irrigation systems were used on just over 50 % of irrigated area (1 917 892 hectares) in 2017.
- Andalusia, with 29.1 % of the national total, had the largest irrigated area in absolute terms (1 096 129 hectares), while Valencia had the largest irrigated area in relative terms (40.9 %).

Phytosanitary product consumption

- In 2016, average consumption of phytosanitary products was 3.6 kg of active ingredient per hectare.
- With a 22.5 % overall increase in phytosanitary product consumption, only insecticides, nematocides and acaricides as a group recorded a decrease in consumption in 2016 (-0.9 %).
- In 2016, the autonomous communities with the greatest phytosanitary product consumption per hectare were the Canary Islands, Murcia, Valencia and Rioja.

Organic livestock farming

- The number of organic livestock farms increased by 3.7 % in 2016, reaching a total of 7 836.
- Andalusia and Catalonia accounted for 63 % of organic livestock farms in 2016.
- Farms raising cattle for meat made up the highest proportion (47.1 %).

Eco-efficiency in agriculture

- According to provisional data, the GVA for agriculture, livestock farming and fishing increased by 3 % in 2016.
- In 2016, fertiliser consumption and irrigated farmland increased by 5.2 % and 0.6 % respectively, while phytosanitary product consumption increased by 1.1 %.

Fertiliser consumption

Fertiliser consumption

By commercial product (thousand t)	2012/13	2013/14	2014/15	2015/16	2016/17
Simple nitrogen fertilisers	2 367	2 585	2 612	2 503	2 535
Simple phosphate fertilisers	156	167	194	215	211
Simple potash fertilisers	215	243	275	292	317
Complex fertilisers	1 849	1 876	1 805	1 752	1 867
Total fertilisers	**4 587**	**4 871**	**4 886**	**4 762**	**4 930**
By nutrient (thousand t)	**2012/13**	**2013/14**	**2014/15**	**2015/16**	**2016/17**
Total N	961	1 036	1 014	987	1 020
Total P_2O_5	377	428	403	388	432
Total K_2O	338	356	365	372	390
Total fertilisers	**1 676**	**1 820**	**1 782**	**1 747**	**1 842**

Source: ANFFE

- ***Total fertiliser consumption (as a commercial product) increased by 3.5 % during the 2016/2017 agricultural year***
- ***In the 2016/2017 agricultural year, average consumption per hectare of fertilisable area in Spain was 121.7 kg/ha***
- ***Valencia and the Canary Islands accounted for the highest fertiliser consumption during the last agricultural year, consuming 266 kg/ha and 242.7 kg/ha respectively***

According to FAO publication World Fertilizer Trends and Outlook to 2018, fertiliser consumption will grow worldwide at a rate of 1.8 % annually until 2018. By that year, global fertiliser use could surpass 200.5 million tonnes — 25 % more than in 2008.

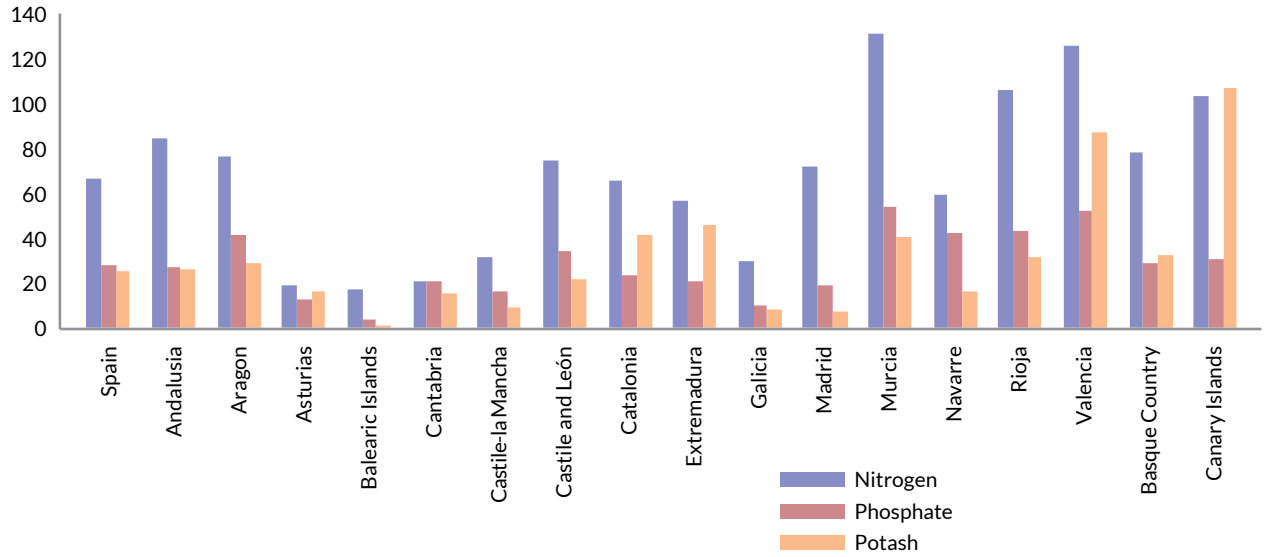
In Spain, total fertiliser consumption (as a commercial product) in the 2016/2017 agricultural year, which ran from July 2016 to June 2017, showed a 3.5 % increase over the previous agricultural year. During the last five years, consumption was over 4.5 million tonnes annually, reaching 4.9 million tonnes in the 2016/2017 agricultural year.

The trend in fertiliser consumption by type (also as a commercial product) over the last five agricultural years has been uneven. In the last year, consumption of potash fertilisers increased by 8.6 % (to 317 000 tonnes), while consumption of complex and nitrogen fertilisers rose by 6.6 % and 1.3 % (to 1.867 million tonnes and 2.535 million tonnes respectively).

In contrast, phosphate fertilisers —which registered the highest increase in the previous agricultural year (10.8 %)— were the only product to show a slight decrease in 2016/2017 (-1.9 %), thus lowering consumption to 211 000 tonnes.

The trend in the consumption of the different fertilisers (by nutrient) during the last agricultural year showed growth among all the products. Phosphate fertilisers increased by 11.3 % (432 000 tonnes), potash by 4.8 % (390 000 tonnes) and nitrogen by 3.3 % (1.020 million tonnes).

Fertiliser consumption (kg/ha). 2016/2017 agricultural year



Source: Compiled in-house from ANFFE data

The autonomous communities that recorded the greatest fertiliser consumption per hectare during the 2016/2017 agricultural year were Valencia (266.0 kg/ha) and the Canary Islands (242.7 kg/ha), followed by Murcia (227.4 kg/ha) and Rioja (182.7 kg/ha).

This consumption (per hectare of fertilisable area) varies greatly between the autonomous communities and depends primarily on the degree of agricultural intensification and technification at the farms. These two factors explain why fertiliser consumption is higher in autonomous communities with a stronger farming tradition, as opposed to consumption in other communities like the Balearic Islands (22.7 %) and Galicia (48.7 %) that have a lower level of agricultural intensification.

Overall, average consumption per hectare of fertilisable area in Spain totalled 121.7 kg/ha for the 2016/2017 agricultural year.

Definition of the indicator:

The indicator shows fertiliser consumption in Spain by nutrient (N, P_2O_5 and K_2O). The trend in each fertiliser is analysed both in absolute terms (total consumption in tonnes) and relative terms (kg/hectare of fertilisable area).

Methodological notes:

- Fertilisable area is defined as arable land (excluding fallow land) and natural grasslands.
- Fertilisers are products used in agriculture or gardening that, due to their nutrient content, encourage plant growth, increase yield and improve harvest quality, or that, due to their specific action, alter (as necessary) soil fertility or its physical, chemical or biological characteristics. This category includes fertilisers, special products and conditioners.

Source:

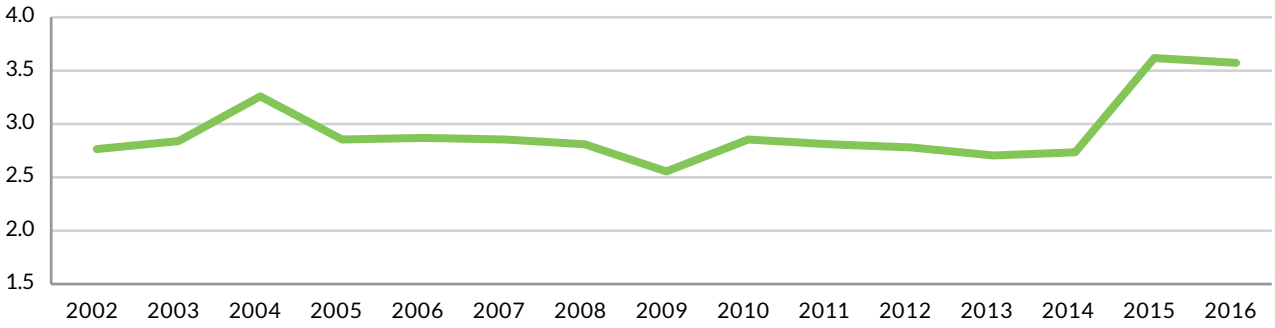
- Treated area: ESYRCE (Crop Area and Yield Survey), 2017. Technical Secretariat-General. Ministry of Agriculture, Fisheries and Food.
- Fertilisers: ANFFE (National Association of Fertiliser Manufacturers).

Recommended websites:

- http://www.mapa.gob.es/es/estadistica/temas/estadisticas-agrarias/agricultura/esyrce/
- http://www.mapa.gob.es/es/agricultura/temas/medios-de-produccion/productos-fertilizantes/
- http://www.anffe.org

Phytosanitary product consumption

Changes in phytosanitary product consumption (kg active ingredient/ha)



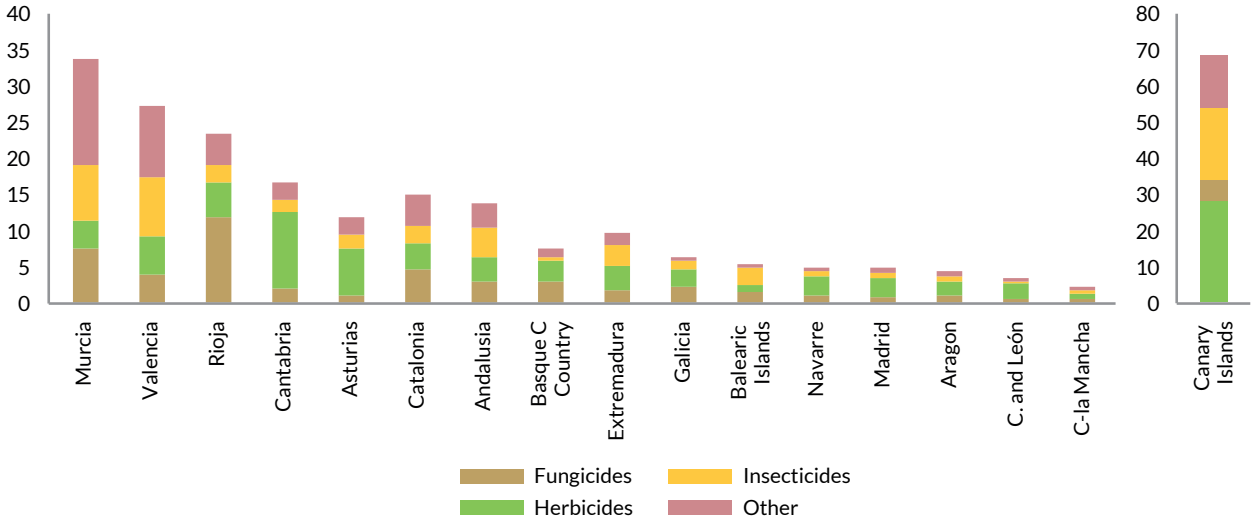
Source: Compiled in-house from AEPLA and MAPA data

- ***In 2016, average consumption of phytosanitary products was 3.6 kg of active ingredient per hectare***
- ***With a 22.5 % overall increase in phytosanitary product consumption, only insecticides, nematocides and acaricides as a group recorded a decrease in consumption in 2016 (-0.9 %)***
- ***In 2016, the autonomous communities with the greatest phytosanitary product consumption per hectare were the Canary Islands, Murcia, Valencia and Rioja***

Between 2005 and 2014, phytosanitary product consumption remained fairly stable at around 2.7 kg per hectare. After a significant rise in 2015, when consumption totalled 3.6 kg per hectare, a slight reduction (1.3 %) was recorded in 2016, lowering the figure to 3.5 kg of active ingredient per hectare.

Phytosanitary product consumption increased by 22 % in 2016 and amounted to 125 296 tonnes, compared to the 102 721 tonnes consumed in 2015; however, each product group followed a different trend. Herbicide consumption, which represented 28.7 % of total consumption, rose by 11.3 % to 35 941 tonnes. Fungicide consumption, which was 22.5 % of the total, reached 28 227 tonnes. Insecticides, nematocides and acaricides, which comprised 23.8 % of total consumption, were the only group to record a decrease in 2016 (-0.9 %; 29 758 tonnes). Lastly, the remaining phytosanitary products accounted for 25 % of total consumption (31 369 tonnes).

Phytosanitary product consumption (kg/ha). 2016



Source: Compiled in-house from AEPLA and MAPA data

The breakdown of product consumption by type and hectare shows that the autonomous communities with the most agriculturally intensive and technified farming systems are also those that use the most phytosanitary products. As such, the greatest use of phytosanitary products in 2016 occurred in the Canary Islands (69.1 kg/ha), followed by Murcia (33.8 kg/ha), Valencia (27.3 kg/ha) and Rioja (23.4 kg/ha). In contrast, the autonomous communities with least intensive farming practices reflected a lower and more stable consumption, as seen in Castile-La Mancha (2.3 kg/ha), Castile and Leon (3.4 kg/ha) and Aragon (4.3 kg/ha).

Definition of the indicator:

Phytosanitary product consumption per active ingredient and per hectare in Spain, both as a whole and by group: herbicides, insecticides, fungicides, etc.

Methodological notes:

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

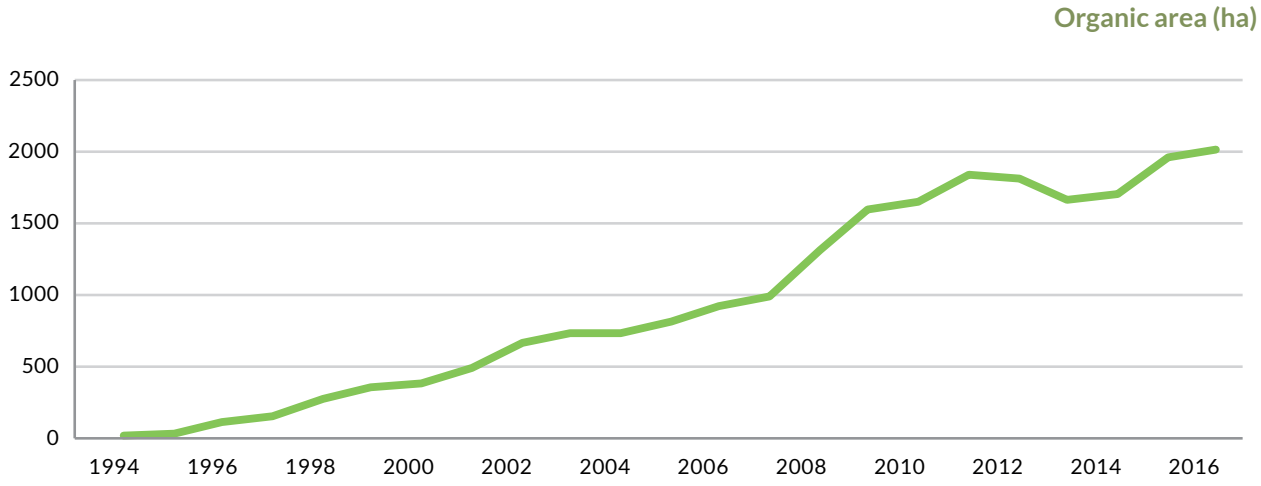
Source:

- Phytosanitary products: Data provided by AEPLA (Plant Protection Trade Association), upon specific query.
- Treated area:
  - ESYRCE (Crop Area and Yield Survey), 2017. Ministry of Agriculture, Fisheries and Food.
  - Agri-Food Statistics Yearbook, 2017. Ministry of Agriculture, Fisheries and Food.

Recommended websites:

- http://www.mapa.gob.es/es/agricultura/temas/
- http://www.aepla.es
- http://www.mapa.gob.es/es/estadistica/temas/estadisticas-agrarias/agricultura/esyrce/
- http://www.mapa.gob.es/es/calidad-y-evaluacion-ambiental/temas/productos-quimicos/fitosanitarios/
- http://www.mapa.gob.es/es/estadistica/temas/publicaciones/anuario-de-estadistica/default.aspx

Organic crop farming



Source: Compiled in-house from AEPLA and MAPA data

- ***Organic crop farming is becoming an increasingly important production system in the Spanish food sector***
- ***In 2016, organically farmed land totalled 2 018 803 hectares while dehesas, with 295 908 hectares, comprised 14.6 % of total organic area***
- ***Andalusia, Castile-La Mancha and Catalonia represented just over 75 % of organic area in Spain***

Organic crop farming is a production system aimed at securing high-quality, environmentally friendly agricultural products. Furthermore, practising sustainable agricultural can lead to significant improvements in food security and resilience to climate change.

According to data provided by Eurostat, organic production in the European Union reached 11.9 million hectares in 2016. Spain, at 16.9 %, together with Italy (15.1 %), France (12.9 %) and Germany (9.5 %), account for more than half of total organic production in the EU (54.4 %).

The agricultural area devoted to organic production in Spain rose to a new high in 2016 —2 018 802 hectares— marking a 2.6 % increase on the previous year.

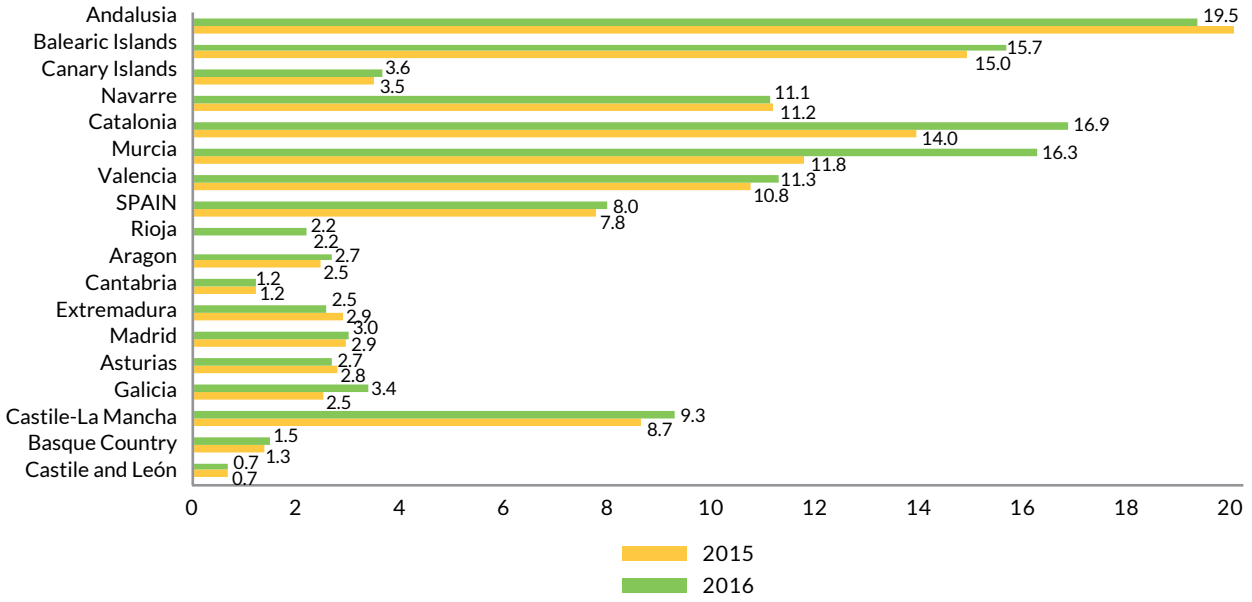
Of total organically farmed land, 1 399 734 hectares were certified organic (69.3 % of the total), 264 143 hectares were in the first year of conversion (13.1 % of the total) and 354 926 hectares were in the second or third year of conversion (17.3 % of the total). A noteworthy figure can been seen in 2016, when the land area in the first year of conversion fell from 453 842 hectares to 264 143 hectares — a 41.8 % decrease.

With respect to organic production operators (producers, processors and distributors), these grew by 13.3 % in 2016, reaching a total of 41 771.

As for farming systems, the area used for permanent pastures and grassland covered 1 052 381 hectares in 2016 (53.5 % of the total). The area dedicated to permanent crops was 489 941 hectares (24.9 %), and the area occupied by arable land totalled 476 480 hectares (21.6 %). By area, cereals for grain production covered

the largest proportion in the arable land category, comprising 45.4 % of the total area. In the permanent crop category, olive groves and nuts occupied the largest area, covering 40.1 % and 27.7 % of the total respectively. Finally, in the permanent pastures and grassland category, 59.6 % of this area was occupied by permanent grassland and grazing land.

Share of total organic area in total utilised agricultural area (%)



Source: Compiled in-house from MAPA data

In relative terms, and with respect to utilised agricultural area (UAA), the breakdown of organic area by autonomous community showed Andalusia as having the highest share devoted to organic farming (19.5 %). Catalonia was next with 16.9 %, followed by Murcia (16.3 %) and the Balearic Islands (15.7 %). In 2016, the mean area devoted to organic farming made up 8 % of total UAA in Spain.

In absolute terms, Andalusia was also the region that had the largest area used for organic farming (976 414 hectares) —despite having experienced a year-on-year reduction of 3.4 %— and its contribution to the national total was 48.4 %. It was followed by Castile-La Mancha with 391 353 hectares (a 7.1 % year-on-year increase and 19.4 % contribution to the total), and Catalonia with 171 925 hectares (a 21 % year-on-year increase and 8.5 % contribution to the total).

Definition of the indicator:

The indicator shows the crop area used for organic production.

Methodological notes:

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

Source:

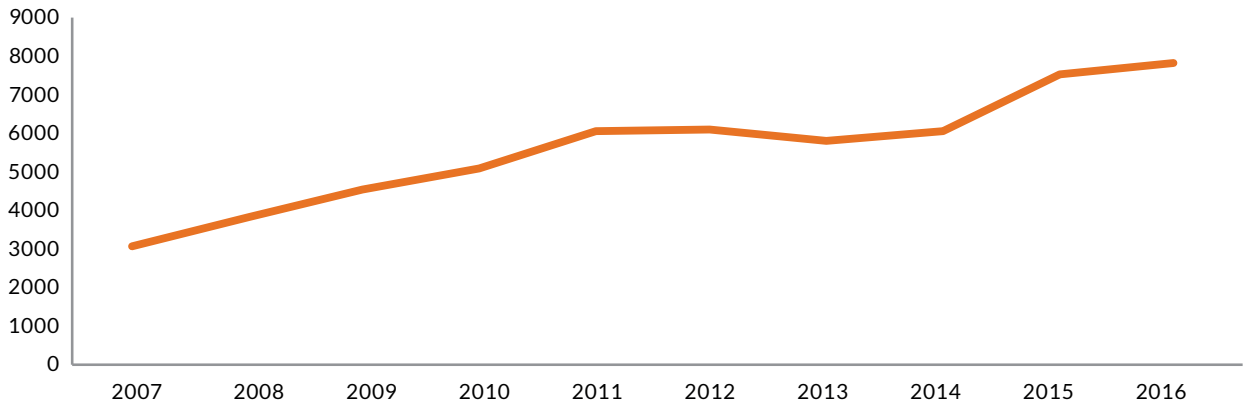
- Organic farming statistics, 2016. Subdirectorate-General for Differentiated Quality and Organic Farming. MAPA.
- ESYRCE (Crop Area and Yield Survey), 2016. Technical Secretariat-General. MAPA.

Recommended websites:

- http://www.miteco.gob.es/es/alimentacion/temas/produccion-ecologica/

Organic livestock farming

Number of organic livestock farms



Source: MAPA.

- ***The number of organic livestock farms increased by 3.7 % in 2016, reaching a total of 7 836***
- ***Andalusia and Catalonia accounted for 63 % of organic livestock farms in 2016***
- ***Farms raising cattle for meat made up the highest proportion (47.1 %)***

Organic livestock farming in Spain over the last decade (2007–2016) has shown progressive growth, albeit slower and on a smaller scale than that of organic crop farming. From 2015 to 2016, the number of organic livestock farms rose from 7 553 to 7 836, representing a 3.7 % increase.

Of the 7 836 registered organic farms in 2016, 47 % were cattle farms (3 689). As for production activity, 96 % of them (3 538 farms) raised cattle for meat. This was followed by sheep farms (2 181 farms; 27.8 % of the total), which were also primarily dedicated to meat production (2 125 farms; 97.4 % of the total). The number of goat and equine farms totalled 759 and 500 respectively. Finally, poultry farms accounted for 341 holdings, the majority of which were for egg production (71.8 %).

As for type of farm, the number of organic livestock farms changed unevenly in the last year. Bee and poultry farms increased by 17.7 % and 16 % respectively, while other farms, such as those for cattle and sheep, showed more modest increases (5 % and 0.6 % respectively). In 2016, the only decrease observed was in the number of pig and goat farms (-6.5 % and -2.3 % respectively).

Number of organic livestock farms

	2015	2016	2015–2016 change (%)
Cattle	3 515	3 689	5.0
Sheep	2 169	2 181	0.6
Goats	777	759	-2.3
Pigs	155	145	-6.5
Poultry	294	341	16.0
Bees	181	213	17.7
Equidae	456	500	9.0
Other livestock	6	8	33.3
Total	**7 553**	**7 836**	**3.7**

Source: MAPA.

The breakdown of livestock farms by autonomous community shows that Andalusia led the Spanish market with 4 934 farms (63 % of the national total). Far behind it was Catalonia with 834 farms (10.6 % of the total), Galicia with 368 farms (4.7 % of the total) and Castile-La Mancha with 318 farms (4.1 % of the total). Once again, Murcia and Madrid had the lowest number of organic livestock farms: 19 and 4 respectively.

Definition of the indicator:

The indicator shows the number of organic livestock farms. The data are broken down by type of farm and autonomous community.

Methodological notes:

- The legislative framework governing organic crop and livestock farming in Spain changed in 2014 with the adoption of Royal Decree 833/2014 of 3 October 2014 establishing and regulating the General Register of Organic Operators and creating the Coordinating Board for Organic Production. This regulation repeals Royal Decree 759/1988 and Royal Decree 1852/1993, which until then were the prevailing regulations on this matter in Spain.
- In the EU, the main references are Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91, and Commission Regulation (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control.

Source:

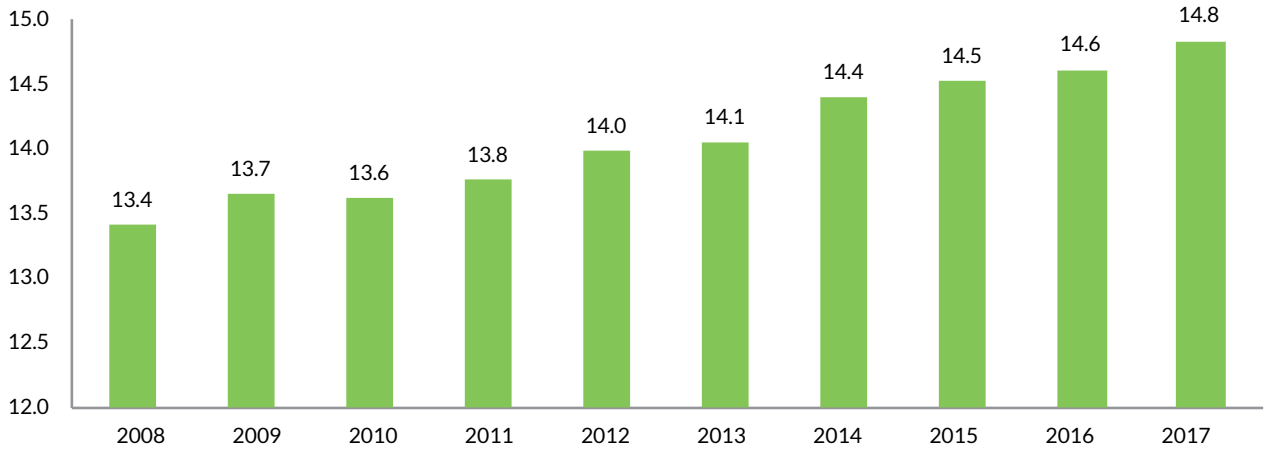
Organic farming. Statistics. 2016. Subdirectorate-General for Differentiated Quality and Organic Farming. Ministry of Agriculture, Fisheries and Food.

Recommended websites:

- https://www.mapa.gob.es/es/alimentacion/temas/produccion-ecologica/documentos-de-interes/default.aspx

Irrigated area

Share of irrigated farmland in total agricultural area (%)



Source: MAPA.

- ***In 2017, 14.8 % of total agricultural area in Spain was irrigated***
- ***Localised irrigation systems were used on just over 50 % of irrigated area (1 917 892 hectares) in 2017***
- ***Andalusia, with 29.1 % of the national total, had the largest irrigated area in absolute terms (1 096 129 hectares), while Valencia had the largest irrigated area in relative terms (40.9 %)***

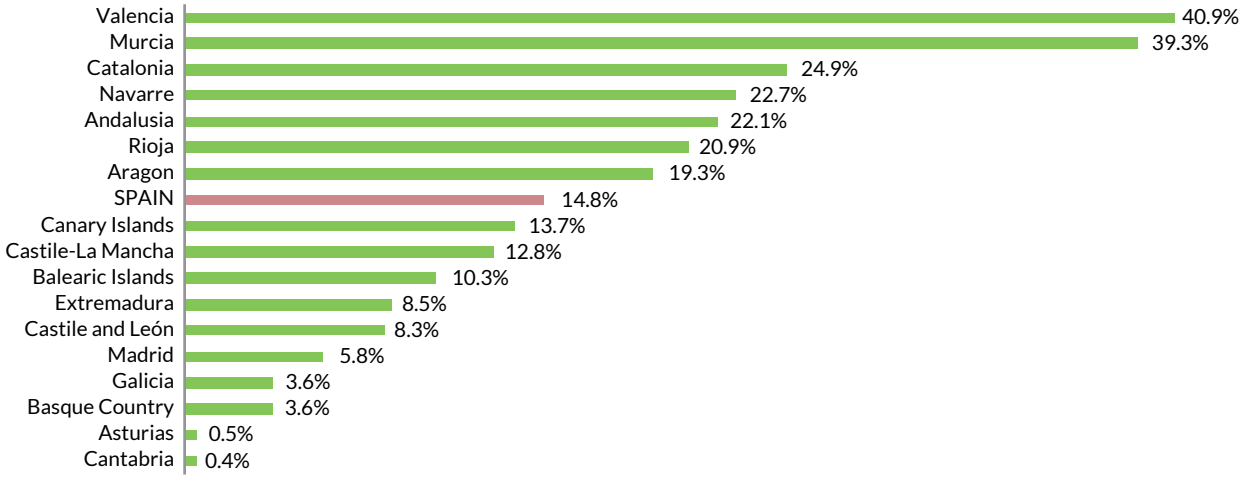
Between 2008 and 2017, irrigation in Spain displayed a progressive and continuous increase. It went from 3 421 163 hectares in 2008 to 3 763 762 hectares in 2017 (a net increase of 342 600 hectares), which reflected growth in area from 13.4 % to 14.8 %.

In relative terms, the share of irrigated farmland with respect to total agricultural area varied depending on the autonomous community. Valencia and Murcia had the highest shares in 2017, with 40.9 % and 39.3 % of irrigated farmland respectively. They were followed at some distance by Catalonia (24.9 %), Navarre (22.7 %), Andalusia (22.1 %) and Rioja (20.9 %). At the opposite end of the spectrum, Cantabria and Asturias respectively recorded 0.4 % and 0.5 % of irrigated farmland as compared to total agricultural area.

In absolute terms, the regions with the highest amount of irrigated farmland in 2017 —which are also the largest autonomous communities— were Andalusia with 1 096 129 hectares (29.1 % of the total), followed by Castile-La Mancha with 540 253 hectares (14.4 %), Castile and Leon with 456 968 hectares (12.1 %) and Aragon with 407 464 hectares (10.8 %). Cantabria, with 966 hectares (0.026 % of the total) and Asturias, with 2 007 hectares (0.053 % of the total) had the lowest shares of irrigated farmland.

As for the type of irrigation system used, the data collected in 2017 for the *Encuesta sobre Superficies y Rendimientos de Cultivos* (Crop Area and Yield Survey), which is published by the Ministry of Agriculture, Fisheries and Food, show that 51.4 % of the areas used localised irrigation systems, while 15.3 % used sprinkler systems and 8.5 % used automated systems.

Share of irrigated farmland in total agricultural area (%)



Source: MAPA.

Localised irrigation, which is more common for woody crops, was seen mainly in Andalusia (43.1 %), Castile-La Mancha (17.2 %) and Valencia (10.5 %). Both sprinkler and automated irrigation systems were used mainly in Castile and Leon and Castile-La Mancha (27.2 % and 46.7 % respectively for sprinkler systems, and 17.6 % and 36.7 % for automated systems).

Gravity-fed systems, which are the least efficient, covered a total of 926 748 hectares in 2017 (24.8 % of the area). However, between 2008 and 2017, the farmland irrigated by this system fell by 14.4 %. The farmland irrigated by gravity-fed systems was concentrated mainly in the autonomous communities of Aragon (20.5 %), Andalusia (18.8 %) and Catalonia (13.6 %).

By type of crop, cereals made up the largest irrigated area (926 795 hectares; 24.8 % of total irrigated area), followed by olive groves (784 859 hectares; 21 % of the total), and vineyards (378 903 hectares; 10.2 % of the total).

Definition of the indicator:

The indicator shows the ratio of irrigated farmland to total agricultural area, expressed as a percentage. The data are presented at both national and regional level.

Methodological notes:

- Irrigated farmland refers to the area that is dedicated to crops or to improving pastures and that is supplied with water, regardless of irrigation frequency throughout the year.
- The total agricultural area under consideration is the sum of all areas that are occupied by arable and fallow land, greenhouses and family farms.
- Data for irrigated farmland have been obtained from the ESYRCE by subtracting the irrigated forest area from the irrigated geographical area then adding the area covered by greenhouses.

Source:

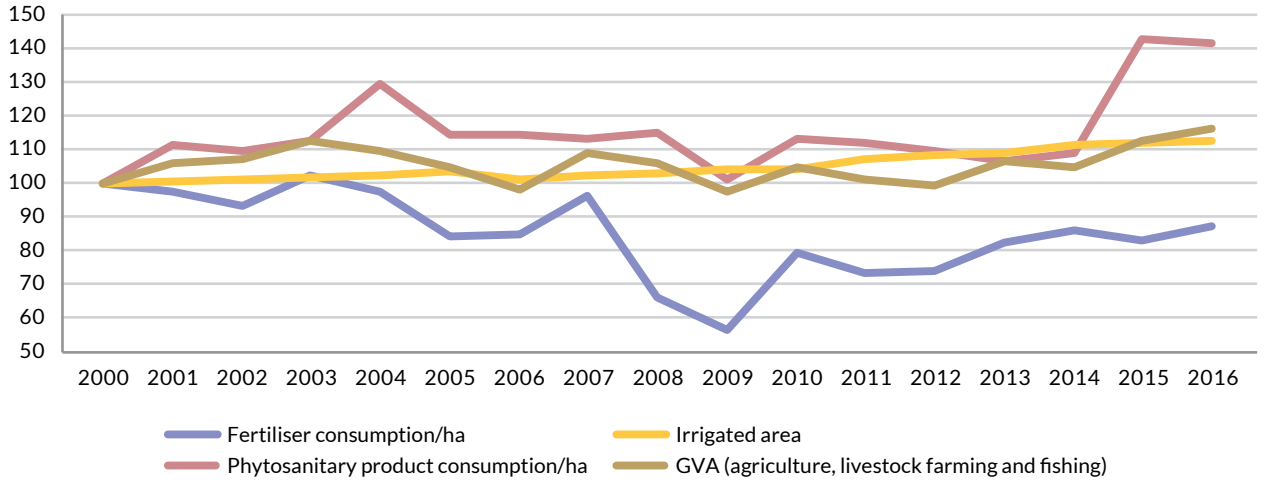
ESYRCE. Report on irrigation in Spain, 2017. Technical Secretariat-General. Ministry of Agriculture, Fisheries and Food.

Recommended websites:

- http://www.mapa.gob.es/es/estadistica/temas/estadisticas-agrarias/agricultura/esyrce/

Eco-efficiency in agriculture

Eco-efficiency in agriculture. Index: 2000 = 100)



Source: Compiled in-house from MAPA, AEPLA and INE data.

- ***According to provisional data, the GVA for agriculture, livestock farming and fishing increased by 3 % in 2016***
- ***In 2016, fertiliser consumption and irrigated farmland increased by 5.2 % and 0.6 % respectively, while phytosanitary product consumption increased by 1.1 %***

To tackle new challenges in the agricultural sector, farming practices must ensure economic and environmental sustainability by eliminating or correcting any strain they exert on the environment.

The graph shows, for the 2000–2016 period, the trend in three of the main variables that are linked to farming practices and that put pressure on the environment. These variables are irrigated farmland, fertiliser consumption and phytosanitary product consumption. As each of them is related to the economic growth of agriculture through gross value added (GVA), they provide an analysis of the sector's eco-efficiency.

The ideal situation for eco-efficiency in agriculture occurs when there is a clear decoupling between these production resources and the sector's economic growth (i.e. when GVA is rising and consumption of the various resources is falling).

Between 2000 and 2016, the GVA for agriculture, livestock and fisheries increased by 16.3 %, while the last year-to-year rate (according to the predicted 2016 figure) grew by 3 %. Fertiliser consumption showed a more irregular and negative trend overall, whereas phytosanitary product consumption and irrigated farmland showed clear growth throughout the dataset. For this period, irrigated farmland was the variable that was most closely coupled to GVA. From 2000 onwards, this variable displayed continuous growth built on slight annual increases, resulting in cumulative growth of 12.6 % throughout the dataset and a 0.6 % increase in the last year.

Despite considerable fluctuations, the other variable that reflected growth over 2000–2016 was phytosanitary product consumption, which increased by 41.6 %, though it fell slightly by 1.1 % in the last year in the series.

Fertiliser consumption per hectare, showing an uneven trend throughout the dataset, declined by 13 % from the beginning of the period, although it experienced a 5.2 % recovery in the last year. The fertiliser consumption mentioned above varies greatly depending on climatic conditions throughout the agricultural year, and it is very common to see considerable year-to-year fluctuations. Therefore, it is more useful to analyse the general trend than a value from one specific year.

Definition of the indicator:

The indicator shows the relationship between the GVA of agriculture, livestock and fishing and the variables for phytosanitary product consumption, fertiliser consumption and irrigated farmland.

Methodological notes:

- Sector GVA refers to agriculture, fishing, hunting and forestry.
- To interpret the indicator, eco-efficiency is considered positive when the trend of the sector's economic growth is decoupled (opposite and divergent) from the trend of the strain it exerts on the environment.
- When analysing changes in fertiliser consumption, it must be understood that this variable is highly dependent on the climatic conditions during the agricultural year, given that the amount of rainfall, the frequency and duration of droughts and frosts, etc., largely determine the use of these products and their market price.

Source:

- Gross Value Added: INE. Spanish National Accounts. 2010 base. Gross domestic product at market prices and its components. Current prices. Accounting series 1995–2017.
- Fertiliser consumption: Statistical Yearbook, 2016. Ministry of Agriculture, Fisheries and Food.
- Phytosanitary product consumption: AEPLA (Plant Protection Trade Association).
- Irrigated area: ESYRCE (Crop Area and Yield Survey), 2017. Ministry of Agriculture, Fisheries and Food.

Recommended websites:

- http://www.mapa.gob.es/es/agricultura/temas/
- http://www.anffe.com
- http://www.aepla.es
- http://www.mapa.gob.es/es/agricultura/temas/sanidad-vegetal/productos-fitosanitarios/fitos.asp
- http://www.mapa.gob.es/es/agricultura/temas/medios-de-produccion/productos-fertilizantes/
- http://www.mapa.gob.es/es/estadistica/temas/publicaciones/anuario-de-estadistica/default.aspx

2.12 ENERGY

Generally speaking, the energy sector faces two major challenges: the 30 % rise in demand that is estimated for 2040 by the International Energy Agency (IEA) and the greater environmental sustainability that meeting it will require. According to the IEA's report titled Key Electricity Trends 2017, global production of renewable energy increased in 2017, while that of nuclear energy and fossil fuels decreased. Nevertheless, fossil fuels continue to be the predominant energy source.

To comply with the objectives outlined in the Paris Agreement and with the energy and climate commitments made by the European Union, Spain has worked throughout 2017 on drafting the law on climate change and energy transition. In accordance with Decision 406/2009/EC on the distribution of efforts, Spain is responsible for a 10 % reduction in greenhouse gas emissions in diffuse sectors by 2020 with respect to 2005 levels.

Other targets set by the European Union for 2020 are to increase energy efficiency and the share held by renewable energy. From a long-term perspective, Spain has made considerable progress toward reaching these targets. However, according to the *Avance Informativo de 2017* (a report on energy consumption in 2017) published by Spanish grid operator Red Eléctrica de España (REE), renewable energy consumption in 2017 fell due to the reduced contribution made by hydropower that

year because of the drought. It is worth noting that this sector accounts for about one fifth of all renewable energy consumed, although its relative importance is declining as alternative sources develop.

Another area that has suffered a setback thas year, according to the 2017 report, is Spain's energy dependence, which is linked to the rise in national energy consumption (due, in turn, to economic growth) and to one of the biggest current topics of debate in the sector: the closure of power plants.

In 2017, the Santa María de Garoña nuclear power plant was definitively shut down, which currently leaves only five nuclear power plants in operation. In addition, plans were made to close several coal-fired power plants by 2020, in accordance with the timetable established by the European Union to achieve its target for full decarbonisation by 2050.

The closure of these plants marks a step towards the overall sustainability targets, although in the short term it may lead to imbalances in foreign dependence and in the national energy mix.

Changes in final energy demand

- Spain's final energy demand increased in 2016 for the second consecutive year.
- More than half of the final energy consumed in 2016 came from oil, followed by electricity (24 %) and gas (16 %).
- Coal was the only energy sector in which consumption fell with respect to the previous year.
- Between 2005 and 2016, renewable energy consumption increased by 42 %.

Renewable energy consumption

- In 2016, primary consumption of renewable energy in Spain was 3.4 % higher than in 2015, due mainly to regaining the supply of hydropower.
- Since 2000, renewable energy consumption has increased by 148 %, with the greatest growth occurring in photovoltaic solar power. Biomass and wind continue to be the biggest contributors to the energy mix, though their shares have been declining since 2000 and 2013, respectively.
- The contribution of renewables to gross final consumption was 17.3 %, thus moving towards the European target of 20 % renewable energy by 2020.

Eco-efficiency in energy

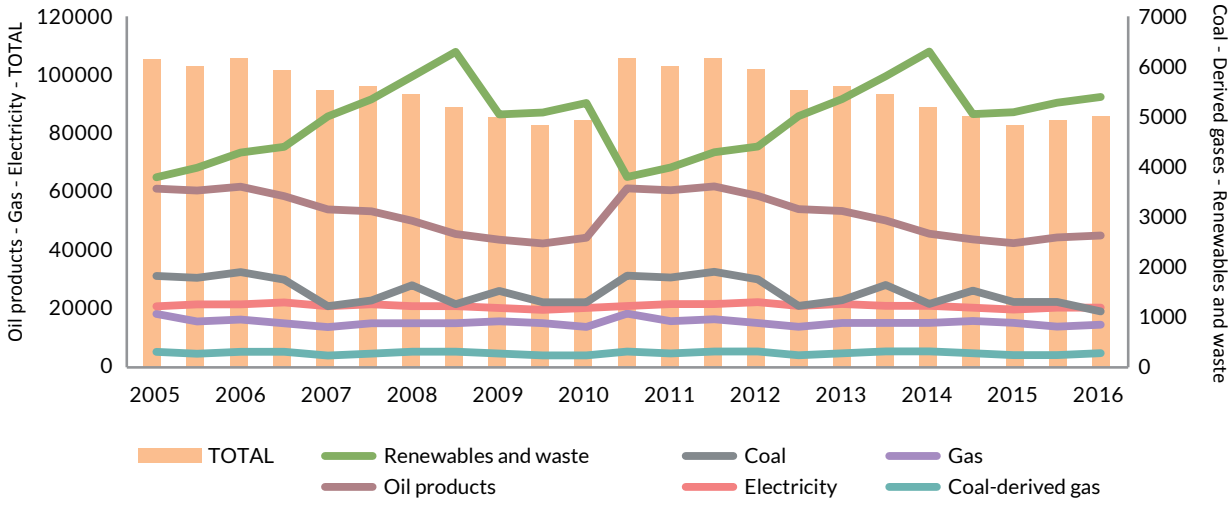
- Between 2000 and 2016, Spain's primary and final energy intensities decreased by 31 % and 33 % respectively, indicating positive eco-efficiency.
- In 2016, primary energy intensity in Spain was 5 % lower than in the European Union as a whole.
- Although Spain's energy dependence decreased by 6 % from 2000 to 2016, it was still 72 % in 2016, higher than the EU average.

Guarantees of origin and electricity labelling

- There were 36 659 guaranteed installations in 2017, which amounted to 46 482 MW of installed power.
- In 2017, guarantees of origin were provided for 78 486 GWh of energy, representing 30.4 % of Spain's total electricity production and 70.7 % of its renewable and cogeneration production.
- The guarantees of origin issued between 2016 and 2017 fell by 8.5 % due to the decrease in both hydropower production and natural gas cogeneration plants. More than 80 % of the affiliated organisations belonged to only three countries: Germany, Italy and Spain.

Changes in final energy **demand**

Final energy consumption 2005–2016 (ktoe)



Source: MITECO

- *Spain's final energy demand increased in 2016 for the second consecutive year*
- *More than half of the final energy consumed in 2016 came from oil, followed by electricity (24 %) and gas (16 %)*
- *Coal was the only energy sector in which consumption fell with respect to the previous year*
- *Between 2005 and 2016, renewable energy consumption increased by 42 %*

In 2016, Spain's final energy consumption amounted to 85 875 kilotonnes of oil equivalent (ktoe), which broke —for the second consecutive year— the downward trend in demand observed between 2007 and 2014. The report *La energía en España, 2016* (Energy in Spain, 2016), published by the Ministry of Energy, Tourism and Digital Agenda (the energy portfolio of which is now held by the Ministry for Ecological Transition), attributes the increase in energy demand to two factors: the harsh winter and economic recovery.

From a longer-term perspective, however, Spain's energy demand has changed significantly, declining by 19 % over the last eleven years. According to data provided by Eurostat, this makes Spain the third-ranked country by greatest decrease in annual energy demand since 2005.

The breakdown of energy demand by sector in 2016 shows the predominance of oil products, which accounted for more than half of the final energy consumed (53 %), followed by electricity (24 %), gas (16 %) and renewable energy (6 %). The coal and coal gas industries accounted for only 1 % of energy demand. Coal was the only energy sector in which consumption fell with respect to 2015 (-14.5 %), and this is linked to the closure of several coal-fired power stations in 2016.

The trend in Spain's final energy demand over the last 16 years has been favourable, with a decrease in all energy sources except renewables, which increased by 42 % with respect to 2005. This is a two-percentage-point increase in their contribution to the energy mix. Apart from this, the only other type of energy that improved its contribution to the energy balance was electricity, which rose from 20 % to 23 %. Although moderate, this change in the energy mix shows that final energy demand has adapted to a more sustainable structure, with the share of oil products falling by five percentage points over the last decade.

Definition of the indicator:

Final energy consumption shows the energy supplied to consumers that will later be converted into useful energy, either for energy or non-energy uses.

Methodological notes:

Energy is measured in tonnes of oil equivalent (toe), one of which is equal to 10^7 kcal. Conversion of physical units to toe is based on the lowest calorific values of each of the energy sources studied.

Sources:

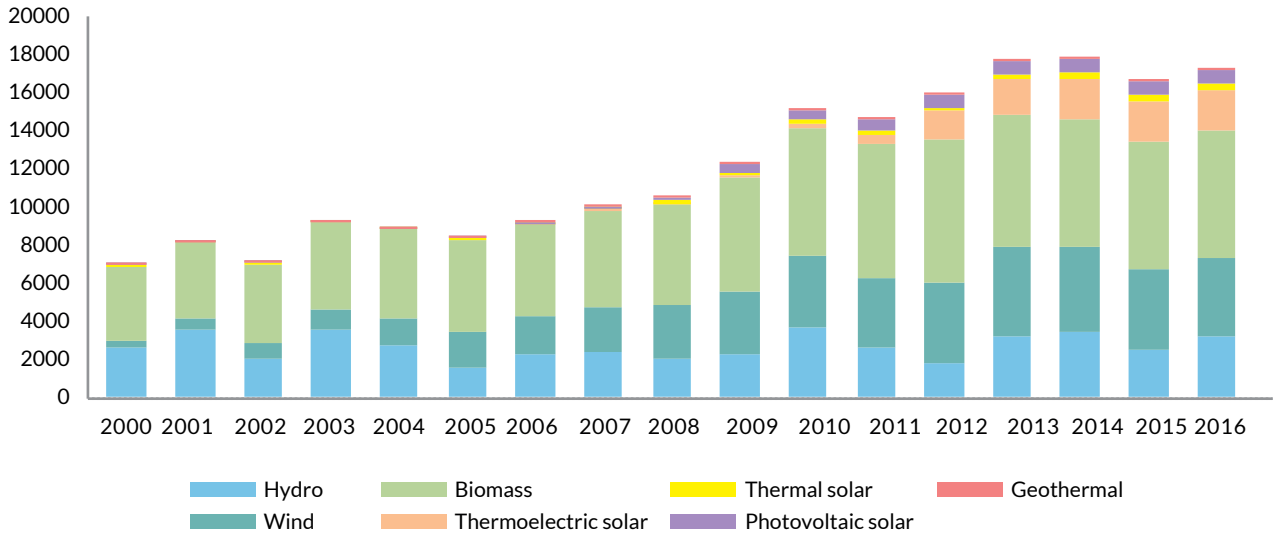
Ministry of Energy, Tourism and Digital Agenda (the energy portfolio of which is now held by the Ministry for Ecological Transition), Quarterly Report. Fourth quarter, 2016. Available at: http://www.minetad.gob.es/energia/balances/Balances/Paginas/CoyunturaTrimestral.aspx

Recommended websites:

- http://www.mincotur.gob.es/energia/balances/Balances/LibrosEnergia/energia-espana-2016.pdf
- http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=ten00095&plugin=1

Renewable energy consumption

Renewable energy consumption 2000–2016 (ktoe)



Source: IDAE

- *In 2016, primary consumption of renewable energy in Spain was 3.4 % higher than in 2015, due mainly to regaining the supply of hydropower*
- *Since 2000, renewable energy consumption has increased by 148 %, with the greatest growth occurring in photovoltaic solar power. Biomass and wind continue to be the biggest contributors to the energy mix, though their shares have been declining since 2000 and 2013, respectively*
- *The contribution of renewables to gross final consumption was 17.3 %, thus moving towards the European target of 20 % renewable energy by 2020*

Spain's primary consumption of renewable energy in 2016 was 17 213 ktoe, a 3.4 % increase with respect to 2015. This has made up for the decline that was recorded in 2015 due to low rainfall. The increased share of hydropower (which was 30 % higher, thus reaching the levels of previous years) and the 5 % increase in solar thermal energy consumption contributed to this growth. On the other hand, photovoltaic energy consumption in 2016 fell by 2.5 % with respect to 2015.

Renewable energy consumption has increased exponentially since 2000 and its structure has changed significantly. This is due to the development of emerging forms of renewable energy (such as geothermal and solar, photovoltaic and thermoelectric) and increased consumption of the others, albeit unevenly. For instance, while the share of hydropower has increased by 23 % since 2000, that of wind increased by 933 % and that of biomass by 70 %. However, it should be noted that these latter two forms of energy have shown occasional declines in recent years.

These changes are reflected in the renewable energy balance. In 2000, the share of renewable energy came mainly from biomass (57 %), hydropower (37 %) and wind (6 %). The distribution of the current energy mix is dominated by biomass (39 %), followed by wind (24 %), hydropower (18 %) and solar thermoelectric (13 %). Solar photovoltaic power (4.03 %) ranks sixth, followed by solar thermal (1.70 %) and geothermal energy (0.11 %).

In the European Union, gross domestic consumption of renewable energy reached 216 619.7 ktoe in 2016, which was up 2 % from 2015 and up 56 % over the previous decade. Germany still ranks first for the greatest renewable energy consumption, just as the year before. Spain is fifth, accounting for 8 % of Europe's gross energy consumption.

In addition, according to 2016 data from Eurostat's SHARES tool, the share of renewable energy over gross final energy consumption in Spain was 17.3 % — slightly higher than the European Union average (17 %) and less than three percentage points away from the common target of 20 % by 2020.

Definition of the indicator:

The indicator shows the trend in renewable energy consumption in terms of primary energy demand from 2000 to 2015. Primary energy demand reflects the total amount of energy resources consumed, either directly or for transport or conversion into another form of energy.

Methodological notes:

- Gross domestic consumption refers to the total energy required by a country to satisfy its domestic use. It includes consumption in the energy sector, energy losses during conversion and distribution, 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 + variations of stocks – bunkers.
- The share of renewable energy is calculated according to the methodology established in Directive 2009/28/EC on the promotion of the use of energy from renewable sources. It is the sum of three components: gross final consumption of electricity from renewable energy sources, from renewable energy sources in heating and cooling, and from renewable energy sources in the transport sector. The gross final consumption of electricity from renewable sources is the electricity produced from renewable energy sources. This includes hydropower plants (excluding hydroelectric power produced by pumped storage plants using water previously pumped uphill), as well as electricity generated from biofuels/solid waste, and wind, solar and geothermal installations.

Sources:

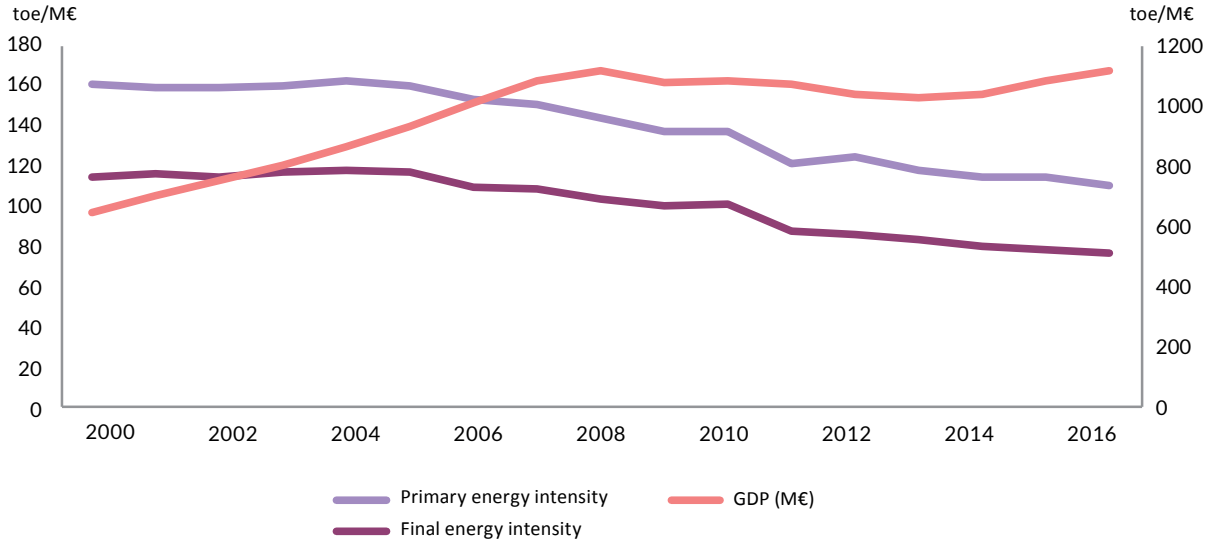
- IDAE. *Informe estadístico de Energías Renovables 2016* (2016 Statistical Report on Renewable Energy).

Recommended websites:

- http://ec.europa.eu/eurostat/statistics-explained/index.php/Renewable_energy_statistics
- http://informeestadistico.idae.es/t3.htm
- https://www.boe.es/doue/2009/140/L00016-00062.pdf

Eco-efficiency in energy

Energy intensity (toe/M€ and M€ for GDP)



Source: MITECO and INE

- *Between 2000 and 2016, Spain's primary and final energy intensities decreased by 31 % and 33 % respectively, indicating positive eco-efficiency*
- *In 2016, primary energy intensity in Spain was 5 % lower than in the European Union as a whole*
- *Although Spain's energy dependence decreased by 6 % from 2000 to 2016, it was still 72 % in 2016, higher than the EU average*

In 2016, primary energy intensity was 110 tonnes of oil equivalent per million euros (toe/M€) and final energy intensity was 77 toe/M€. Compared to 2015, primary energy intensity decreased by 3 % and final energy intensity by 2 %, thus strengthening the trend towards greater energy efficiency.

The indicator shows that, since 2000, economic growth has been successfully decoupled from energy consumption. As such, gross domestic product at market prices increased by 73 % between 2000 and 2016, while primary and final energy consumption decreased.

Spain's primary energy intensity in 2016 was 5 % lower than that of the European Union as a whole, which is also moving towards greater energy efficiency.

Spain's energy dependence in 2016 was 72 %, which was higher than the average for the European Union (61 %). This indicator has evolved positively at national level due to a 6 % decrease in import dependency with respect to 2000. For the EU-28 as a whole, import dependency has increased by 14 % since 2000, though this has stabilised in recent years.

Definition of the indicator:

The indicator shows the eco-efficiency of energy by analysing the trend in primary and final energy intensities (the lower the intensity, the greater the energy efficiency) in relation to GDP at market prices.

Methodological notes:

- Primary and final intensities are calculated as the ratio of primary and final energy consumption to GDP at market prices. As such, they illustrate the link between energy consumption and economic growth. Relative decoupling occurs if energy consumption grows more slowly than the economy, and absolute decoupling occurs if the economy grows without an increase in energy consumption.
- Energy dependence reflects the extent to which an economy relies on imports to meet its energy needs. It is calculated as net imports divided by the sum of gross domestic energy consumption plus maritime bunkers.
- The data on energy intensity in Europe and how it compares to Spain are the same as those used by the European Commission. To ensure that price inflation does not affect the indicator, GDP is calculated at constant prices using 2010 as the baseline year.

Sources:

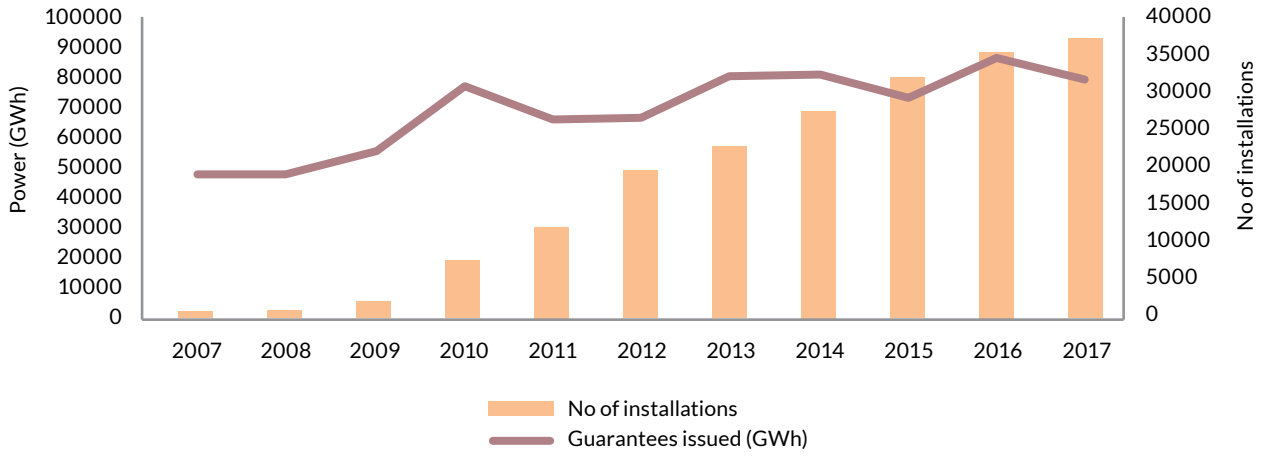
- Energy intensity: Ministry of Energy, Tourism and Digital Agenda (now the Ministry for Ecological Transition). Quarterly Report. Fourth quarter, 2016. Available at: http://www.minetad.gob.es/energia/balances/Balances/Paginas/CoyunturaTrimestral.aspx
- GDP: INE. GDP at market prices. http://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736167628&menu=resultados&idp=1254735576581
- Energy dependence: EUROSTAT. Energy dependence. Available at: http://ec.europa.eu/eurostat/web/products-datasets/-/t2020_rd320

Recommended websites:

- https://ec.europa.eu/energy/en/data-analysis/country
- http://ec.europa.eu/eurostat/web/products-datasets/-/t2020_rd320
- https://www.eea.europa.eu/data-and-maps/indicators/total-primary-energy-intensity-3/assessment-1

Guarantees of origin and electricity labelling

Guarantees of origin 2007–2017



Source: CNMC

- *There were 36 659 guaranteed installations in 2017, which amounted to 46 482 MW of installed power*
- *In 2017, guarantees of origin were provided for 78 486 GWh of energy, representing 30.4 % of Spain's total electricity production and 70.7 % of its renewable and cogeneration production*
- *The guarantees of origin issued between 2016 and 2017 fell by 8.5 % due to the decrease in both hydropower production and natural gas cogeneration plants*

In 2017, the CNMC (National Commission on Markets and Competition) accredited a total of 36 659 installations under the guarantee of origin and electricity labelling system. Relatively speaking, this year marked the smallest annual increase (5 %) in company affiliations since the creation of the guarantee of origin system in 2007.

In 2017, guarantees of origin were provided for 78 486 GWh of energy: 97.7 % was renewable energy and 2.3 % was cogeneration. This accounted for 30.4 % of Spain's total electricity production and 70.7 % of its renewable and cogeneration production.

Although the share of renewables and cogeneration in the guarantee of origin system increased with respect to 2016, guarantees of origin decreased by 8.5 %. This decline was mainly due to the decreased supply of hydropower, which was caused by the precipitation deficit in 2017. Electricity production with a guarantee of origin from other renewable sources (biomass, wind, photovoltaic, thermal solar and waste) increased with respect to the previous year. Similarly, electricity production from fuel oil cogeneration plants increased, but that from natural gas cogeneration plants decreased.

With regard to all electricity (both certified and non-certified), the main share of the production mix in 2017, as shown in the table, was provided by renewables (32 %), followed by nuclear (21.5 %), coal (15.5 %) and natural

gas cogeneration (14.4 %). This contrasts with the sales mix, in which renewable energy only accounted for 5 %, while all other sources —except high-efficiency cogeneration— had a stronger presence. Consequently, the sales mix produces more pollution than the production mix.

Compared to the previous year and due to climatic constraints, we can see that the contribution of renewable energy decreased in both energy balances. resulting in a greater presence of coal and natural gas co-combustion. These changes caused an increase in carbon dioxide emissions, which were 24 % higher in 2017 than in 2016 for the production mix, and 19.5 % higher for the sales mix.

Energy mix. 2017

	Production mix 2017	Change in production mix 2016–2017	Electricity sales mix	Change in sales mix 2016–2017
Renewables	32.00 %	-7.80 %	5.20 %	-7.50 %
High-efficiency cogeneration	0.70 %	-0.10 %	0.10 %	0.00 %
Cogeneration	10.20 %	1.20 %	14.40 %	1.20 %
Natural gas co-combustion	14.40 %	**3.30 %**	20.20 %	**4.00 %**
Coal	17.50 %	**3.30 %**	24.60 %	**3.70 %**
Fuel oil/gas	2.70 %	0.10 %	3.80 %	0.00 %
Nuclear	21.50 %	0.20 %	30.30 %	-1.00 %
Others	1.00 %	-0.20 %	1.40 %	-0.40 %
CO_2 emissions (kg/kWh)	0.31	0.06	0.43	0.07
High-level radioactive waste (mg/kWh)	0.54	0.03	0.76	0.01

Source: CNMC

Definition of the indicator:

The indicator shows the changes in the number of companies affiliated with the guarantee of origin and electricity labelling system and their certified production (in gigawatt hours).
The table lists the energy balances for electricity production and sales in 2017, and the change with respect to 2016. Therefore, the proportion that each energy source represents is expressed over the total electricity production and sales mixes, respectively. The change shown in the table is the result of subtracting the 2017 figures from the 2016 ones. In addition, it includes the estimated carbon dioxide and radioactive waste generated per kilowatt hour produced.

Methodological notes:

- A guarantee of origin is a document that accredits that an amount of electricity has been produced from renewable sources or high-efficiency cogeneration in Spain, and it provides information on the environmental impact of the energy produced.
- As enrolment in the guarantee of origin and electricity labelling system is voluntary, not all the electricity produced from renewable sources or from high-efficiency cogeneration is included.

Source:

- CNMC. https://gdo.cnmc.es/CNE/navegacion.do?accion=home&reloadNews=true

Recommended websites:

- https://ec.europa.eu/energy/en/topics/renewable-energy/renewable-energy-directive
- https://gdo.cnmc.es/CNE/abrirVentanaIGeneral.do?fichero=Circular %201-2018 %20Garantias %20de %20Origen.pdf&directorio=circulares
- http://www.mincotur.gob.es/energia/balances/Balances/LibrosEnergia/La_Energ %C3 %ADa_2014.pdf

2.13 INDUSTRY

Industry is fundamental to Europe's economic recovery and competitiveness due to its enormous capacity to drive growth, employment and innovation. The legacy left by the recent economic and financial crisis (still evident in many social and economic spheres) turns technological, social and sustainability challenges into niches for development.

In this context, in September 2017, the European Commission published the document titled Investing in a smart, innovative and sustainable Industry: A renewed EU Industrial Policy Strategy (COM(2017) 479 final). Its origins lie in the Communication titled For a European Industrial Renaissance (COM(2014) 14 final), in which one of the objectives for 2020 was for manufacturing industry to account for 20 % of GDP. The Circular Economy Action Plan of 2015 is another Commission initiative closely tied to industrial processes.

The Strategy includes driving job creation and growth through innovation and investment; modernisation of industry in the wake of the digital era; promotion of a fairer single market taking into consideration citizens and businesses; leveraging of European leadership to achieve a low-carbon, circular economy; investment in infrastructure and new technologies; and support for innovation and industrial research on the ground.

One commitment arising from the Strategy is the holding of an annual Industry Day as a nexus at which policies at the European, national, regional and local levels can converge to foster industry that generates jobs, growth and innovation and that promotes policy responses with positive environmental, social and industrial outcomes. The first European Industry Day was held on 28 February 2017. Likewise, 2018 will see the creation of the High-Level Industrial Round Table as a space for reflection, for the presentation of conclusions and for the adoption of agreements to be taken up by politicians.

In recent years, the significance of the development of the Spanish industrial sector, measured in terms of economics and the employment generated, is underlined in Spain's economic forecasts. Over the last few years, industry has accounted for around 14 % of employment, ranking it second, ahead of construction and agriculture. The last year in which a decline in the number of people employed in industry was recorded was 2013. Since 2014, varying growth has been registered, with the population employed increasing by almost 5 % between 2016 and 2017.

From 2000 to 2017, industry's GVA rose by 57.6 %. This period saw continuous growth, interrupted only by downturns in 2009, 2012 and 2013. In 2017, for example, industry's GVA grew by 5.3 %, while total GVA increased by less than 3.9 %. This shows the sector's potential to drive economic growth and its significance as regards economic recovery, led by manufacturing, which accounted for almost 80 % of industrial production and 14.4 % of total production (measured as GVA) in 2017. It should be noted that industry's contribution to total GVA averaged 18 %.

According to provisional EUROSTAT data (not including information for Ireland), in 2017, Spain contributed 7.12 % of the EU-28's GVA, making it the region's fifth-biggest country by contribution to GVA. Heading the list were Germany, the United Kingdom, Italy and France. Within the EU-28, industry's GVA rose over 2000–2017 by 40.9 %, below the 57.6 % increase registered in Spain. Similarly, GVA in the EU-28 rose by 3.4 % over the last year in that period, while it recorded a larger increase (5.3 %) in Spain. Spain's industrial outlook is optimistic, therefore, in relation to the European average.

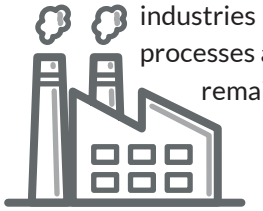
The *Agenda para el fortalecimiento del sector industrial en España* (Agenda for Strengthening Industry in Spain) approved in July 2014 was devised to provide the framework for industrial measures by central government, offering up specific proposals aimed at improving the cross-cutting conditions under which industry operates in order to spur it forward. Several regional governments have adopted strategies in this same vein within their respective territories.

Final energy consumption by industry

- Industry increased its final energy consumption by 0.3 % in 2016, consuming 23 % of all final energy.
- Over 2007–2016, final energy consumption by industry in Spain fell by 30.9 %, nearly double the reduction registered in total final energy consumption.
- In 2016, Spain had the EU-28's fifth-highest level of energy consumption by industry; between them the top five countries accounted for 57.8 % of all final energy consumed.

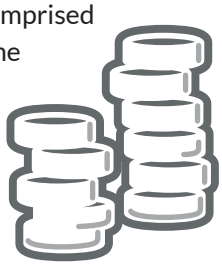
Greenhouse gas emissions by industry

- Greenhouse gas emissions by industry fell by 9.6 % in 2016, breaking with the upward trend seen since 2013.
- In 2016, industry emitted 50.6 % of total GHGs, a contribution slightly below the 2015 figure of 54.2 %.
- The energy industry emitted 25.1 % of total GHG emissions in 2016, the manufacturing and construction industries 14.4 %, and industrial processes and use of products the remaining 11.2 %.



Outlay on environmental protection by industry

- In 2015, industry spent over EUR 2.373 billion on environmental protection, 1.1 % less than in 2014.
- In 2015, 77 % of total industry outlay on environmental protection comprised current expenditure, while the remaining 33 % consisted of investment.
- Over 2008–2015, total environmental protection expenditure by industry fell by 24.2 %.

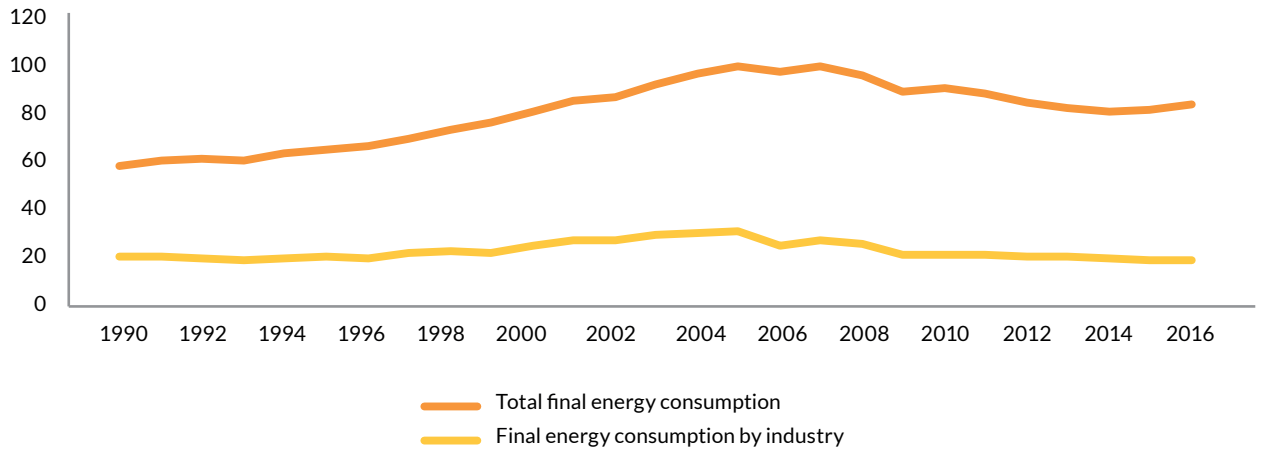


Industrial facilities with validated data listed in Spain's PRTR

- In 2016, Spain's PRTR included a total of 7 720 industrial facilities, 5 538 of which had at least one piece of data validated by the competent authorities.
- Over 2007–2016, the number of industrial facilities included in Spain's PRTR, with data validated by the competent authorities, rose by 25.9 %.

Final energy consumption by industry

Final energy consumption: total and by industry (million toe)



Source: European Commission. Directorate-General for Energy

- *Industry increased its final energy consumption by 0.3 % in 2016, consuming 23 % of all final energy*
- *Over 2007–2016, final energy consumption by industry in Spain fell by 30.9 %, nearly double the reduction registered in total final energy consumption*
- *In 2016, Spain had the EU-28's fifth-highest level of energy consumption by industry; between them the top five countries accounted for 57.8 % of all final energy consumed*

The energy backdrop in 2016 was characterised by a 2.5 % increase in total final energy consumption, attributed, in varying degrees, to all major sectors. Of note were the 4.8 % rise in final energy consumption by transport and, above all, the 6.3 % increase on the part of the service sector. That year, transport consumption accounted for 42.4 % of the total, industry 23 %, households 18.3 %, services 12.9 %, and agriculture and fisheries 3.2 %.

Over 2000–2016, industry was the only sector that reduced its final energy consumption (25.3 %). Industry's trend in this category was characterised by increases until 2007, after which deployment of industrial production processes declined due to the financial crisis. That same year marked a turning point in total energy demand, with a 15.9 % decrease seen between 2007 and 2016. Industry contributed greatly towards this reduction, due to both its influence as regards total consumption and the 30.9 % drop it experienced, well above the decreases registered in all other major sectors such as transport, which recorded a 17.4 % fall in final energy consumption during that same period.

In 2016, industry increased its final energy consumption by 0.3 %. This positive trend reversed the previous one, with drops of 3.8 % and 5.5 % in 2014 and 2015, respectively. This contrasts with the fact that in 2016, industrial production registered an increase of 1.9 % (dataset adjusted for seasonal and calendar effects), while industrial production rose 3.2 % in 2015 and 1.1 % in 2014. For the first time in recent years, in 2016, the increase in industrial production occurred alongside a slight rise in energy consumption.

Spain's contribution to EU total final energy consumption has been increasing, having risen from 5.3 % in 1990 to 7.4 % in 2016. Similarly, the contribution of the Spanish industrial sector to European industry's final energy consumption was characterised by an upward trend, climbing from 5.5 % in 1992 to 6.9 % in 2016. During this period, the specific contribution to industry's total was greater than the contribution to total consumption until 2006, when, for the first time, the contribution to total final energy consumption was greater than that to industry's. The highest contribution to European energy consumption occurred in 2005 (8.2 % of the total and 9.4 % of the figure for industry).

In 2016, Spain had the EU-28's fifth-highest level of energy consumption by industry, behind Germany (22 %), France (11 %), Italy (10 %) and the United Kingdom (9 %). Together with Spain, these countries accounted for 57.8 % of total final energy consumption by industry in the EU.

Definition of the indicator:

The indicator shows data for final energy consumption by industry, including non-energy consumption, meaning those products consumed by industry, such as raw materials, the purpose of which is not direct energy production. The indicator also includes total final energy consumption in Spain.

Methodological notes:

- Information on final energy consumption in industry refers to categories within the following industries: iron and steel; non-ferrous metals; chemicals and petrochemicals; non-metallic minerals; mining and excavation; food and tobacco; textiles and leather; paper, pulp and printing; transport equipment; machinery; wood and wood products; and construction. It does not include transport or energy production.
- In 2016, industrial production rose by 1.9 % in the dataset adjusted for seasonal and calendar effects. In addition, all sectors maintained positive rates except for energy (-0.9 %). Of note is the 3.9 % increase in equipment production. As regards autonomous communities, industrial production rose in eight of them, with notable increases in Castile and Leon (5.0 %), Galicia (4.1 %) and Valencia (3.9 %). The 2017 preliminary estimate is also optimistic, with an approximate 3.0 % rise for this same index (with positive rates in all sectors). This scenario is encouraging, as this last year marks four consecutive years of growth.

Sources:

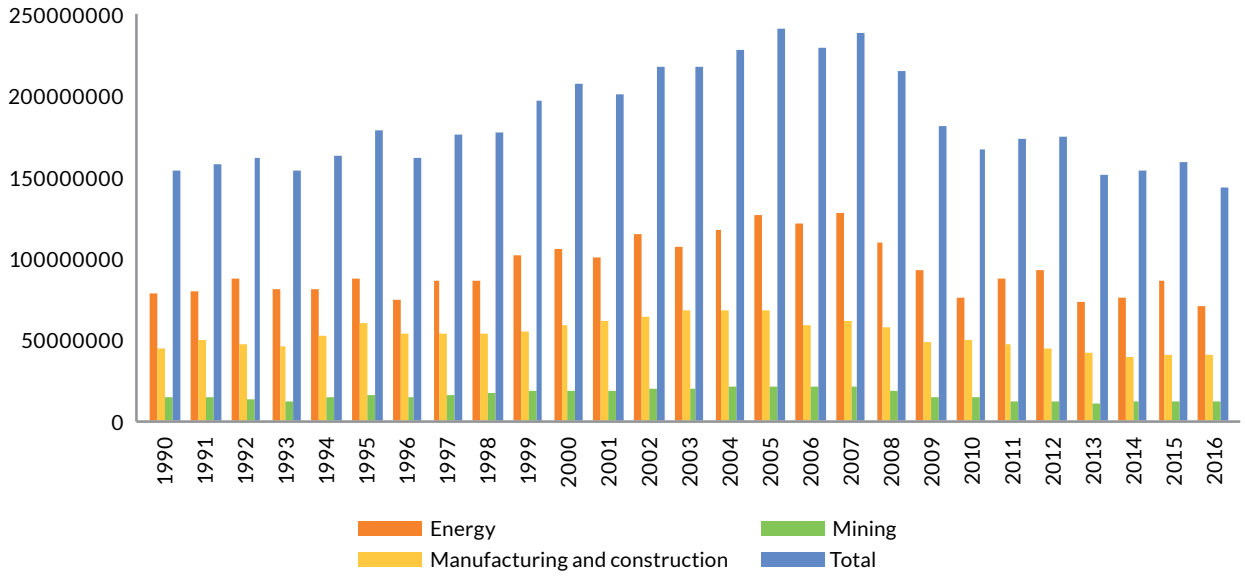
EU Commission, DG ENER, Unit A4, 2018. ENERGY STATISTICS Energy datasheets: EU-28 countries. Specific query for data for Spain and the EU-28. Available at: https://ec.europa.eu/energy/en/data-analysis/country/European Commission/Energy/Data & analysis/By country

Further information:

- http://www.ine.es/daco/daco42/daco422/ipi1216.pdf

Greenhouse gas emissions by industry

GHG emissions by industry (1990–2016). Total and by major sectors (kt of CO_2 equivalent)



Source: European Commission. Directorate-General for Energy

- *Greenhouse gas emissions by industry fell by 9.6 % in 2016, breaking with the upward trend seen since 2013*
- *In 2016, industry emitted 50.6 % of total GHGs, a contribution slightly below the 2015 figure of 54.2 %*
- *The energy industry emitted 25.1 % of total GHG emissions in 2016, the manufacturing and construction industries 14.4 %, and industrial processes and use of products the remaining 11.2 %*

Industry continues to be one of the sectors with the greatest environmental impact: emissions of air pollutants (greenhouse gases, acidifying gases and other pollutants affecting human health), releases to water (pollution and eutrophication in rivers and reservoirs) and waste generation (lack of adequate management and risk of soil pollution). Improvement in legislation and its enforcement, the development of other forms of management (in line with the circular economy principles), the drive for energy efficiency, the incorporation of the best available techniques and the use of renewable energy sources, *inter alia*, have resulted in an improvement in the environmental performance of industry.

As regards greenhouse gas emissions, in 2016, industry was responsible for the emission of 143 809.37 kt of CO_2-eq, amounting to 50.6 % of total GHG emissions that year. Of that overall contribution, energy production accounted for 25.1 % of total emissions and the manufacturing and construction industries 14.4 %. The remaining 11.2 % was emitted by the group of activities constituting industrial processes and use of products. This sum of emissions was 9.6 % less than that of 2015, breaking with the upward trend seen since 2013.

Overall, between 2000 and 2016, the sector reduced its CO_2 emissions by 6.6 %, albeit unevenly across the various industrial activities. The energy and manufacturing industries decreased their emissions by just over 9 %, while the chemical, mining and metal industries reduced theirs by 46.1 %, 19.8 % and 17.4 %, respectively.

From 2007 to 2016 —the years coinciding with the financial crisis and the beginning of recovery from it— the decrease in GHG emissions was much more intense (39.7 %). All sectors except for basic metals have reduced their emissions with respect to 2007, especially the energy (44.2 %), mining (43.8 %) and manufacturing and construction industries (33 %).

In the EU-28, over 2015–2016, the reduction in emissions in the industrial sector, including those from industry and from energy production, amounted to 3 %, well below the 9.6 % registered in Spain.

Definition of the indicator:

The indicator shows industry's greenhouse gas emissions, expressed in kt of CO_2 equivalent. For the purpose of calculating this indicator, the industries included in this sector are energy production, manufacturing and construction, mining, chemicals, basic metals, non-energy products from fuels and solvent use, substitute products for ozone-depleting substances, other product manufacture and use and, lastly, other low-volume industrial processes. This classification is the one used in the Common Reporting Format (CRF) adopted by the United Nations Framework Convention.

Methodological notes:

- The emission figures are expressed in terms of CO_2 equivalent (CO_2-eq), calculated according to the atmospheric warming potentials in the 4th Assessment Report (2007) by the Intergovernmental Panel on Climate Change. 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.
- Emissions used to calculate the indicator for greenhouse gases correspond to those used to prepare the Communication sent to the Secretariat of the 2018 United Nations Framework Convention on Climate Change and are consistent with the Common Reporting Format. The differences between the series used in this edition of the Environmental Profile and those used in previous years are mainly due to internationally agreed changes in the emission factors used for each pollutant and to the methodological adjustments that modify the activities included in the various categories of emission sources and sinks.

Sources:

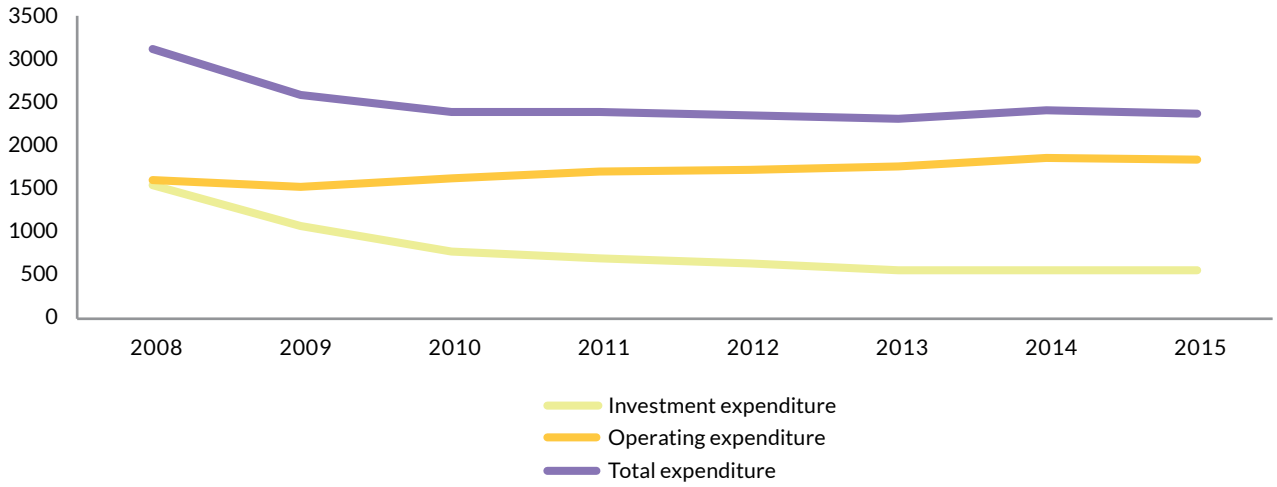
Ministry for Ecological Transition, 2018. *Inventario Nacional de Emisiones de Gases de Efecto Invernadero* (National Inventory of Greenhouse Gas Emissions) 1990–2016.. 2018 edition. Summary report. Submitted to the Secretariat of the United Nations Framework Convention on Climate Change. Data tables (Common Reporting Format).

Further information:

- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/
- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/Inventario-GEI.aspx
- https://www.eea.europa.eu/highlights/small-cut-in-eus-total

Outlay on environmental protection by industry

Outlay on environmental protection by industry (million €)



Source: INE

- *In 2015, industry spent over EUR 2.373 billion on environmental protection, 1.1 % less than in 2014*
- *Over 2008–2015, total environmental protection expenditure by industry fell by 24.2 %*
- *In 2015, 77 % of total industry outlay on environmental protection comprised current expenditure, while the remaining 33 % consisted of investment*

In 2016, total environmental protection expenditure amounted to EUR 16.834 billion (1.4 % greater than in 2015), accounting for 1.5 % of the GDP of that year. As regards total expenditure, the greatest outlays were made in the areas of waste and waste water management (59.3 % and 18.3 %, respectively). They were followed by the protection of ambient air and climate, protection and remediation of soil, groundwater and surface water, protection against radiation, and noise and vibration abatement (9.5 %); research and development and other environmental protection activities (6.6 %); and the protection of biodiversity and landscapes (6.3 %).

At present (at June 2018), information on environmental protection expenditure referring exclusively to industry is available only up to 2015. That year, industry spent over EUR 2.373 billion on environmental protection, a 1.1 % decrease compared to the EUR 2.400 billion spent in 2014.

In the breakdown of total environmental protection expenditure by sector, the highest contribution was made by the food, beverages and tobacco sector (22.9 %), followed by the chemical and pharmaceutical industry (17 %) and basic metals and fabricated metal products (13.9 %).

Of this total expenditure, EUR 1.826 billion corresponded to current expenditure and EUR 547.1 million to investment, of which 58.5 % was used for ambient air and climate protection measures (reduction of emissions to air), 12.8 % for waste water management and 7.0 % for waste management. In 2015, the activity with the greatest investment in environmental protection was electricity, gas, steam and air-conditioning supply, followed by manufacture of coke and refined petroleum products and manufacture of basic metals and fabricated metal products.

Over 2008–2015, the period between the onset of the financial crisis and the start of recovery, total expenditure by industry decreased by 24.2 %. In that same period the sector's GVA declined by 4 %. The loss of economic impetus in Spain's industrial fabric became especially evident in investment expenditure, which fell by 64.3 % over the period, while, by contrast, current expenditure rose by 14.5 %.

Definition of the indicator:

The indicator shows total investment in environmental protection by industry, resulting from the sum of investments made in integrated equipment and facilities that prevent pollution and in equipment and facilities that operate independently from the production process to treat pollutant outputs. Also included is current expenditure, in other words, operating costs whose main purpose is environmental protection and that are charged in the profit-and-loss account of the companies' general accounts.

Methodological notes:

- The information collected was drawn from the Survey on Industry Expenditure on Environmental Protection conducted by the INE. Its scope comprises companies with more than ten remunerated employees whose main business falls under sections B, C or D of the CNAE-2009 (National Classification of Economic Activities, 2009). It includes data relating to the autonomous cities of Ceuta and Melilla, which are not published for reasons of statistical confidentiality.
- The term 'environmental protection' refers to all activities that have the purpose of prevention, reduction or elimination of pollution or any other degradation of the environment, excluding those with a positive impact on it that respond to the technical, hygiene or safety requirements of the company.
- The environmental protection expenditure account records data on environmental protection expenditure incurred by the economy as a whole, i.e. the economic resources actually used by resident units to prevent the degradation of the environment or to enable its restoration, in a way that is compatible with the data reported under the European System of Accounts. The account records operations by institutional sector and as per European methodology; for simplification, certain sectors are grouped together: government and non-profit institutions serving households (NPISHs); non-financial corporations, financial institutions and households.

Sources:

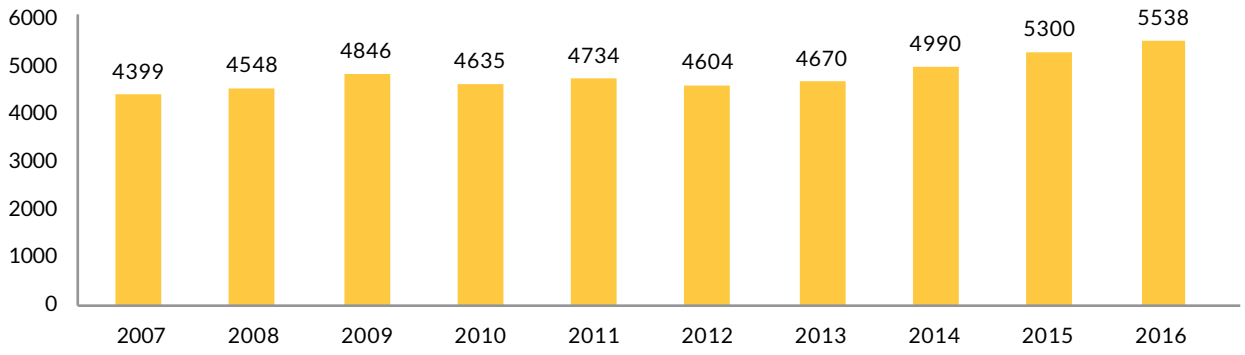
- INE, 2017. Survey on industry expenditure on environmental protection. 2008–2015. Taken from the website: INEbase/Statistics on environmental protection activities/Survey on industry expenditure on environmental protection. 2008–2015/1.1 Expenditure on environmental protection by type of expenditure and economic activity group.

Further information:

- http://www.ine.es/prensa/egpm_2015.pdf
- http://www.ine.es/prensa/cma_2016_gpm.pdf

Industrial facilities with validated data listed in Spain's PRTR

Number of facilities with validated data in Spain's PRTR



Source: European Pollutant Release and Transfer Register (E-PRTR). MITECO

- *In 2016, Spain's PRTR included a total of 7 720 industrial facilities, 5 538 of which had at least one piece of data validated by the competent authorities*
- *Over 2007–2016, the number of industrial facilities included in Spain's PRTR, with data validated by the competent authorities, rose by 25.9 %*

Regulation 166/2006 of 18 January 2006 established the European Pollutant Release and Transfer Register (known as E-PRTR) as an electronic database accessible to the public, in addition to establishing compliance requirements. It takes as its information unit the 'facility', defined as one or more installations on the same site that are operated by the same natural or legal person. 'Installation' means a stationary technical unit where one or more of the activities included in Annex I to Regulation 166/2006 of 18 January 2006 are carried out.

Subsequently, Royal Decree 508/2007 of 20 April 2007 regulating the provision of information on emissions as per the E-PRTR Regulation and on environmental licences, was adopted.

In 2016, the number of facilities in Spain's PRTR with information validated by the competent authorities rose to 5 538. Of those, 76.6 % were facilities with at least one piece of public data (emissions or waste transfers). For this purpose, pollutant load values (kg/year) that exceed the thresholds established in Annex I to Royal Decree 508/2007, or waste transfers that exceed the thresholds indicated in Article 3.1.b, are considered public data.

Since 2007, when Royal Decree 508/2007 entered into force, the number of facilities increased by 25.9 %, from 4 399 validated in 2007 to 5 538 in 2016. The trend is one of sustained growth, with the exception of two isolated falls occurring in 2010 and 2012.

By autonomous community, in 2016, Catalonia had the most facilities registered, with 1 936 (25 % of Spain's national total). It was followed by Aragon with 13 % and Andalusia with 11 %.

By activity, in 2016, intensive livestock production and aquaculture was the activity with the most registered sites (47.1 % of the 7 720 total facilities). It was followed by waste management (11.6 %), the mineral industry (10.8 %) and, lastly, production and processing of metals (9.2 %).

According to the public information available online (http://www.en.prtr-es.es), the number of registered industrial facilities stands at 7 720 (as at December 2017). Included in this inventory are those facilities that carry out at least one of the activities listed in Annex I to Royal Decree 508/2007.

Definition of the indicator:

The indicator shows the number of industrial facilities in Spain's PRTR in compliance with the reporting obligations contained in Royal Decree 508/2007 of 20 April 2007 regulating the provision of information on emissions as per the E-PRTR Regulation and on environmental licences and with Regulation No 166/2006 of 18 January 2006 on establishing a European pollutant release and transfer register and through which Council Directives 91/689/EEC of 12 December 1991 and 96/61/EC of 24 September 1996 are amended.

Methodological notes:

- Spain's PRTR has been in force since 2001. In 2007, it was renamed PRTR-España, and its scope was increased, especially due to the adoption of new international legal instruments. Spain is a party to the Kiev Protocol of 2003 on pollutant release and transfer registers and must also comply with the requirements of Regulation (EC) 166/2006 of 18 January 2006 on the provision of information to the E-PRTR register. Spain passed its own national legislation to define the reporting requirements (Royal Decree 508/2007 of 20 April 2007 and subsequent amendments).
- In accordance with the legislation, operators of industrial facilities must annually submit the information below to the competent authorities in their autonomous communities: emissions of certain pollutants into air, water and soil; accidental releases; releases from diffuse sources and off-site transfers of waste, and other additional information, as set out in the Annexes to Royal Decree 508/2007 regulating the provision of information on emissions as per the E-PRTR Regulation and on environmental licences.
- Data used in constructing the indicator were taken from those provided to Spain's PRTR by the operator of each facility in accordance with Royal Decree 508/2007 and were validated by the competent authorities.
- The total number of industrial facilities registered in Spain's PRTR also includes those facilities that have ceased their activity but still have the obligation to be included since they provide public information.

Sources:

Data provided by Spain's PRTR. Subdirectorate-General for Air Quality and the Industrial Environment. Directorate-General for Biodiversity and Environmental Quality. Ministry for Ecological Transition.

Further information:

- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/medio-ambiente-industrial/
- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/medio-ambiente-industrial/registro-de-emisiones-y-fuentes-contaminantes-prtr/default.aspx
- http://www.prtr-es.es/Informes/InventarioInstalacionesIPPC.aspx
- http://www.prtr-es.es/informes/seriescomplex.aspx

2.14 FISHING

In response to evidence of overexploitation, the European Union has taken action to ensure the sustainability of the fisheries sector and to prevent the size and productivity of fish stocks from being threatened in the long term. The Common Fisheries Policy aims to ensure that both fishing and aquaculture are environmentally, economically and socially sustainable.

The current policy aims to boost the fisheries sector and to ensure a fair standard of living for fishing communities. Along with other measures, it includes catch limits for 2015–2020 that are sustainable and that allow stocks to be maintained in the long term.

One of the greatest threats to the sustainability of global fishery resources is illegal, unreported and unregulated fishing. According to the European Commission report titled Facts and figures on the common fisheries policy: 2016 edition, it is estimated that between 11 and 26 million tonnes of fish are caught illegally in the world each year, accounting for 15 % of global catches.

In September 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development. The Agenda sets out 17 global goals to eradicate poverty, protect the planet and ensure prosperity. Sustainable Development Goal 14 —Conserve and sustainably use the oceans, seas and marine resources for sustainable development— is one of the main pillars of Europe's fisheries sector, which has been

working for years on the conservation and sustainable use of oceans and their resources. The Spanish fleet caught 859 745 tonnes of fish and shellfish in 2016 and, according to data from the United Nations Food and Agriculture Organization (FAO), it ranks first in the EU and 18th in the world for production, accounting for approximately 1.1 % of global marine catches.

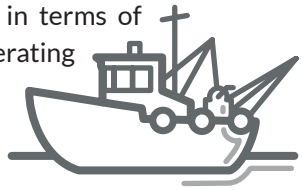
In December 2016, the EU's Agriculture and Fisheries Council brought together ministers from each of the Member States to establish the total allowable catches (TAC) for 2017. The agreement they reached contributed to a general improvement in Spanish quotas, as compared to 2016, by allowing the Spanish fleet to catch just over 41 000 additional tonnes of the main fish species.

The FAO believes that aquaculture contributes to food security, economic development and the efficient use of natural resources. The development of aquaculture in recent decades has demonstrated that it is an essential tool not only to improve productivity but also to exploit our available natural resources sustainably.

Spain's Multiannual National Strategic Plan on Aquaculture for 2014–2020, which is part of the new Common Fisheries Policy supported by the European Maritime and Fisheries Fund, aims to meet the strategic guidelines for the sustainable development of aquaculture that were proposed by the European Commission. The Plan focuses on expanding and strengthening a sector that is viewed as a core activity in the European Union. One of its four strategic goals is to increase Spanish aquaculture production by improving sector planning and selecting new Areas of Aquaculture Interest (EO2).

Number of vessels and fishing fleet capacity

- Spain's fishing fleet comprised 9 299 vessels in 2016, 96.8 % of which operated in national fisheries.
- In 2016, adjustments made to the fishing fleet operating in national fisheries reduced the number of vessels by 1.1 %, tonnage (GT) by 0.7 % and power (kW) by 0.5 %.
- Between 1998 and 2016, the fishing fleet decreased by 45.7 % in terms of number of vessels operating in national fisheries.

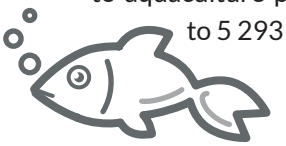


Fishing fleet catches

- In 2016, catches made by Spain's fishing fleet totalled 859 745 tonnes, of which 320 432 tonnes were caught in adjacent waters.
- Spain accounted for 17.4 % of total EU-28 catches in 2016.

Aquaculture production

- In 2016, total aquaculture production amounted to 307 869 tonnes, of which 98.2 % was marine aquaculture production and the remaining 1.8 % was produced inland.
- Inland organic production increased by 10.6 %, totalling 457 tonnes.
- The number of establishments dedicated to aquaculture production in Spain rose to 5 293 in 2016.

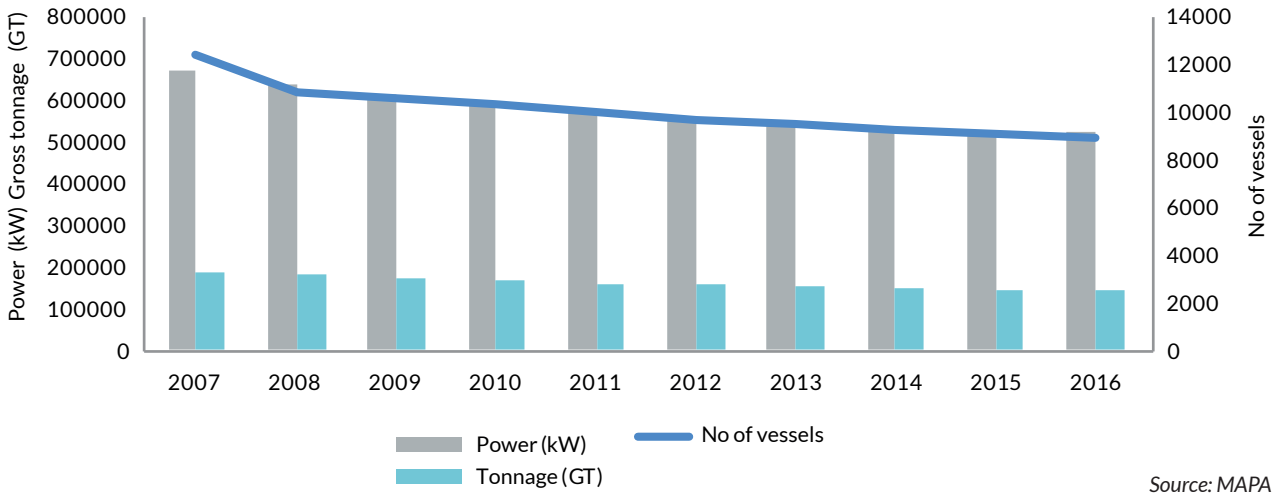


Eco-efficiency in fishing and aquaculture

- The changes in catch volume, as well as in Spain's fishing fleet capacity, are a direct result of implementing the sustainability criteria contained in the Common Fisheries Policy.
- In 2016, GVA increased slightly while fishing fleet size, tonnage and power, catches and aquaculture production all decreased.

Number of vessels **and fishing fleet capacity**

Number of vessels and fishing fleet capacity (national fisheries)



Source: MAPA

- *Spain's fishing fleet comprised 9 299 vessels in 2016, 96.8 % of which operated in national fisheries*
- *In 2016, adjustments made to the fishing fleet operating in national fisheries reduced the number of vessels by 1.1 %, tonnage (GT) by 0.7 % and power (kW) by 0.5 %*
- *Between 1998 and 2016, the fishing fleet decreased by 45.7 % in terms of number of vessels operating in national fisheries*

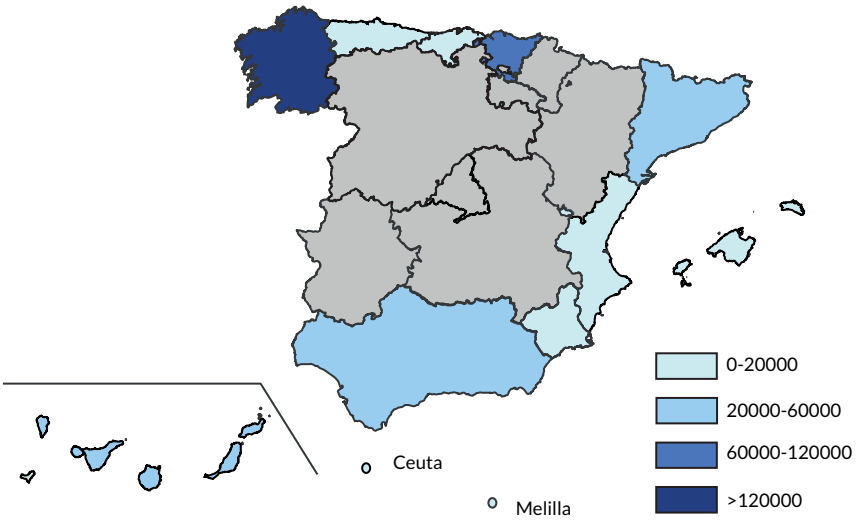
Spain's fishing fleet has undergone progressive adjustment to modernise it and align it with common policy guidelines. Between 2007 and 2016, the fleet decreased by 27.9 % in number of vessels, by 24.6 % in tonnage (vessel load capacity or volume, expressed as GT) and by 21.8 % in power (kW). In 2016, adjustments made to the fishing fleet operating in national fisheries resulted in a 1.1 % decrease in the number of vessels, a 0.7 % decrease in tonnage (GT) and a 0.5 % decrease in power (kW).

According to the 2016 Fishing Fleet Statistics, drawn from a census of the operational fleet as at 31 December 2016, Spain's total fishing fleet (operating in both national and non-national fisheries) was made up of 9 299 vessels with a combined capacity of 337 679 GT and a total power of 789 574 kW.

Out of the national total, 8 998 vessels operated in national fisheries (96.8 %) and only 301 in non-national fisheries (the remaining 3.2 %).

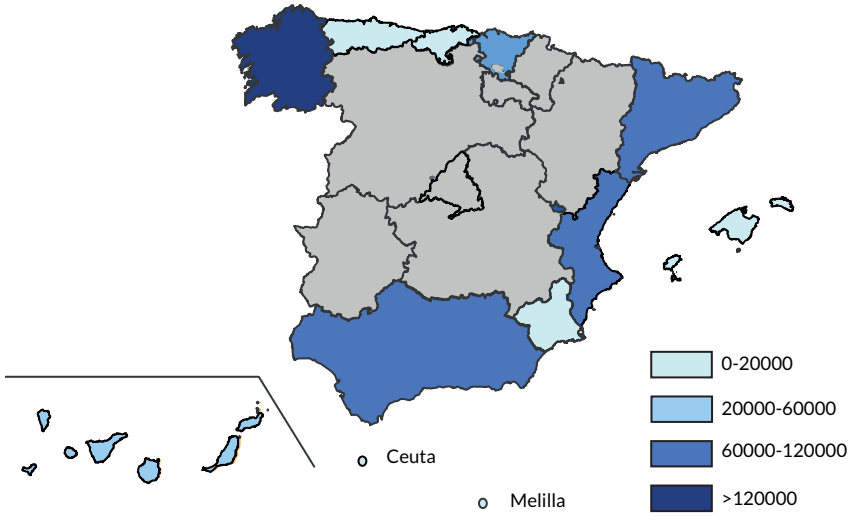
Fishing fleet tonnage. 2016
(total fisheries)

AC	Tonnage (GT)
Andalusia	35 756
Asturias	4 772
Balearic Islands	3 408
Canary Islands	22 811
Cantabria	7 138
Catalonia	20 552
Ceuta	7 976
Galicia	145 362
Murcia	2 682
Basque Country	68 887
Valencia	18 108



Fishing fleet power. 2016
(total fisheries)

AC	Power (kW)
Andalusia	113 484
Asturias	15 661
Balearic Islands	19 134
Canary Islands	51 599
Cantabria	18 344
Catalonia	89 321
Ceuta	11 174
Galicia	279 476
Murcia	10 064
Basque Country	115 574
Valencia	65 744



Source: MAPA

By autonomous community, the fishing fleet shows a declining trend that reflects the scenario nationally, albeit on a different scale. In 2016, the communities with the largest number of operating vessels were Galicia (4 534) and Andalusia (1 486), which witnessed an annual decrease of 0.6 % and 0.5 % respectively. Of particular significance in 2016 was the 5.9 % drop in number of vessels in Murcia, which fell from 188 to 177.

In terms of tonnage, Galicia (145 362 GT), the Basque Country (68 887 GT) and Andalusia (35 756 GT) recorded the highest values. Similarly, and with respect to power, the largest figures were in Galicia (279 476 kW), the Basque Country (115 574 kW) and Andalusia (113 484 kW).

Definition of the indicator:

The indicator shows the characteristics of Spain's fishing fleet in terms of number of vessels and characteristics, which are expressed in tonnage (GT) and power (kW).

Methodological notes:

- This indicator refers to the vessels on List 3 of the General Vessel Register (which forms part of the Census of the Operating Fishing Fleet) that are operational on 31 December each year. Throughout this period, some of these vessels may move to different fisheries, meaning that the total number can vary depending on the date in question. A significant number of vessels are small craft and some even lack a built-in engine.
- In calculating the indicator, in accordance with Council Regulation (EC) No 2371/2002 fishing capacity is shown in power, measured in kilowatts (kW), and load capacity (tonnage), measured in gross tonnes (GT). The latter unit replaced gross registered tonnage (GRT) in 1998.

Source:

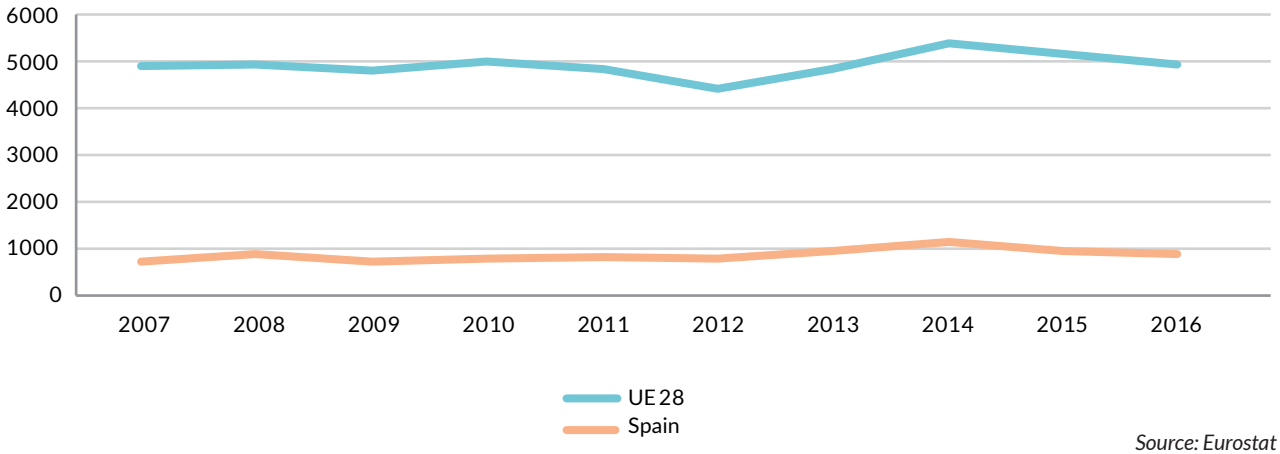
Ministry of Agriculture, Fisheries and Food, 2018. Data provided by the Secretariat-General for the Sea.

Recommended websites:

- http://www.miteco.gob.es/es/pesca/temas/

Fishing fleet **catches**

Total catches in the European Union and Spain (thousand tonnes)



Source: Eurostat

- *In 2016, catches made by Spain's fishing fleet totalled 859 745 tonnes, of which 320 432 tonnes were caught in adjacent waters*
- *Spain accounted for 17.4 % of total EU-28 catches in 2016*

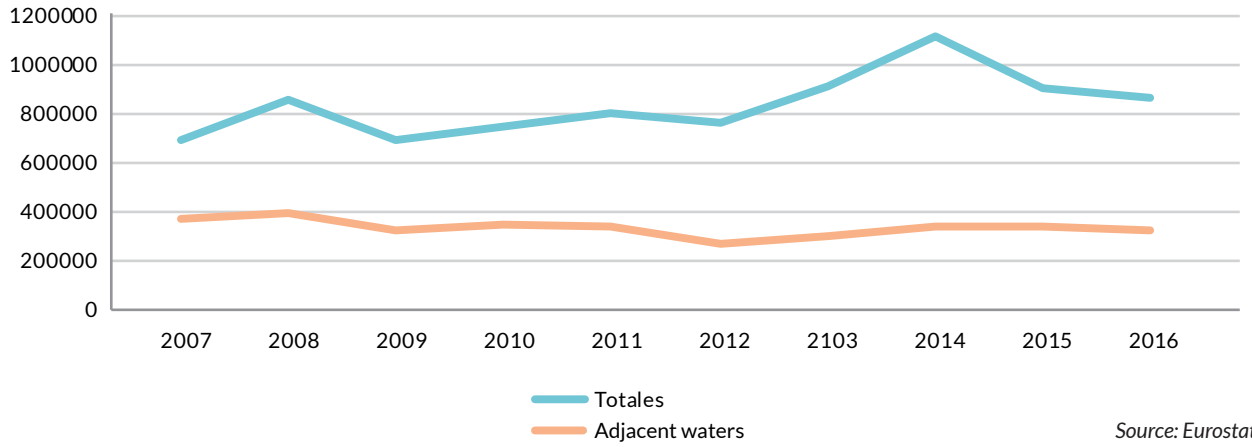
According to the European Commission report titled Facts and figures on the common fisheries policy: 2016 edition, the European Union accounts for just over 5 % of global catches. These catches, in turn, account for 80 % of fishery production, while the remaining 20 % corresponds to aquaculture. This report reveals that the EU's leading countries in terms of fishing volume are Spain, Denmark, the United Kingdom and France, which together account for more than half of EU catches.

According to data provided by Eurostat, total catches made by Spanish fishing vessels in 2016 totalled 859 745 tonnes (in live weight), a 4.6 % decrease on the previous year. In 2016, Spain was responsible for 17.4 % of the total catches made in the European Union (4.9 million tonnes). This figure does not include Greece's fishing fleet catches, as they were not counted in the 2016 statistics.

Catches in adjacent waters in 2016 decreased slightly by 3 % (from 330 431 to 320 432 tonnes).

The breakdown of catches made in 2016 in the fisheries of adjacent waters where Spanish vessels operate show that catch volumes in the Bay of Biscay–North-east Atlantic and the Gulf of Cádiz fell by 8.4 % and 10.1 % respectively, totalling 123 278 and 94 241 tonnes. In contrast, fisheries in the Mediterranean and the Canary Islands experienced increases of 7.0 % and 4 % respectively, producing catch volumes of 81 774 and 21 139 tonnes.

Spanish fishing fleet catches (tonnes)



Source: Eurostat

Catches in adjacent waters

Area	2015	2016	2015–2016 change (%)
Mediterranean	76 416	81 774	7.0
Canary Islands	14 577	21 139	45.0
Bay of Biscay and North-east Atlantic	134 654	123 278	-8.4
Gulf of Cádiz	104 784	94 241	-10.1
Total catches in adjacent waters	**330 431**	**320 432**	**-3.0**

Source: Eurostat

Definition of the indicator:

The indicator shows the total volume of catches (measured in tonnes of live weight) made by Spain's fishing fleet in national fisheries (adjacent waters) and in the rest of the world's fishing zones.

Methodological notes:

For Spain's national fisheries (Mediterranean, Bay of Biscay–North-east Atlantic, Gulf of Cádiz and Canary Islands), Eurostat data have been taken from the following regions: Mediterranean and Black Sea, North-east Atlantic, zone R27-08 c, North-east Atlantic, zone R27-09a and Eastern Central Atlantic, zone 34.1.2, respectively.

Source:

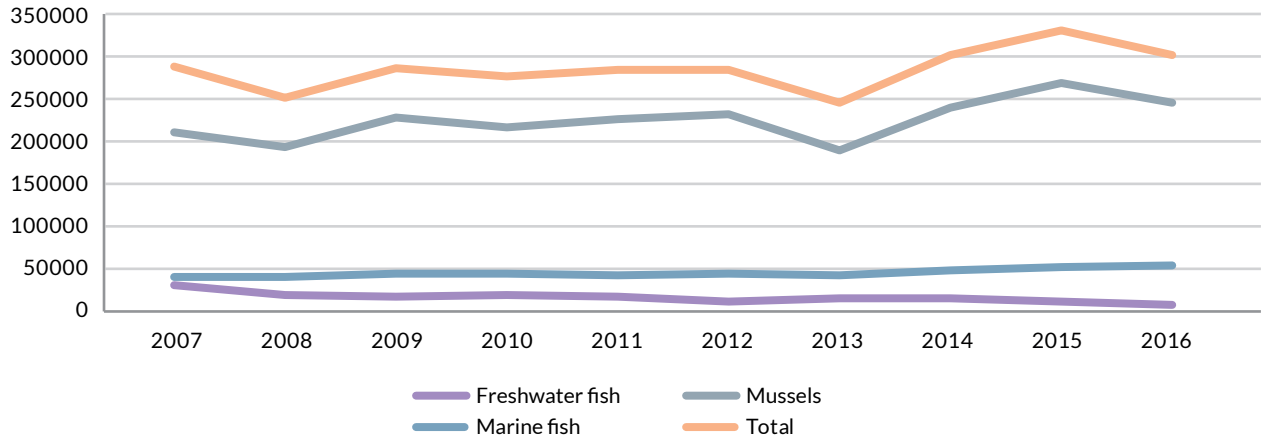
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Total all fishing areas.
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Catches by fishing area / Mediterranean and Black Sea
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Catches by fishing area / East-central Atlantic, Canary Islands
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Catches by fishing area / North-east Atlantic: 1985 onwards, North-east Atlantic
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Catches by fishing area / North-east Atlantic: 1985 onwards, Gulf of Cádiz, Portugal

Recommended websites:

- http://www.mapa.gob.es/es/pesca/temas/
- http://ec.europa.eu/eurostat/data/database

Aquaculture production

Aquaculture production (tonnes). 2007–2016.



Source: JACUMAR, MAPA

- *In 2016, total aquaculture production amounted to 307 869 tonnes, of which 98.2 % was marine aquaculture production and the remaining 1.8 % was produced inland*
- *Inland organic production increased by 10.6 %, totalling 457 tonnes*
- *The number of establishments dedicated to aquaculture production in Spain rose to 5 293 in 2016*

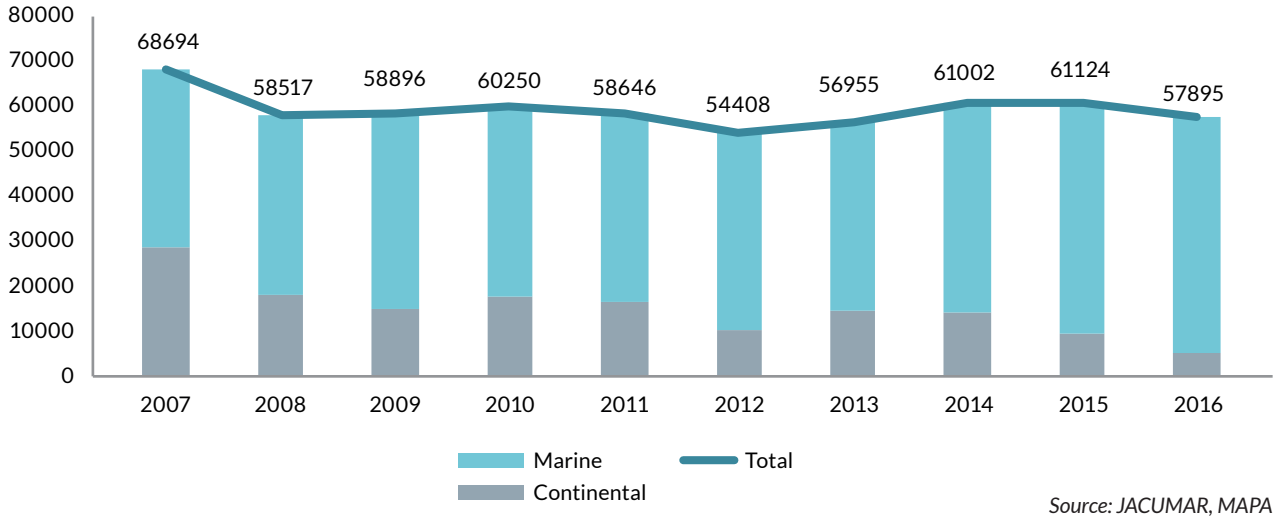
Aquaculture is a rapidly growing sector that already supplies almost half of global fish consumption. According to the European Commission report titled Facts and figures on the common fisheries policy: 2016 edition, aquaculture makes up 20 % of total fishery production in the European Union, totalling around 1.2 million tonnes. In terms of volume, the EU accounts for 1.3 % of aquaculture production. According to Eurostat, Spain had the highest aquaculture production in the European Union, followed by the United Kingdom, France, Greece and Italy.

Data provided by JACUMAR (National Advisory Board for Marine Aquaculture) show that Spain's total aquaculture production for 2016 was 307 869 tonnes. Of this national total, marine aquaculture accounted for 98.2 % (302 205 tonnes) and the remaining 1.8 % was inland (5 664 tonnes). In 2016, marine aquaculture decreased by 7.4 % while inland aquaculture production decreased by a dramatic 50 % (possibly due to the drop in rainbow trout farming).

In 2016, fish made up the bulk of inland aquaculture production (91.9 %), while molluscs (mainly mussels) were the main product of marine aquaculture (82.5 %).

Analysis of fish production from 2007 to 2016 shows a relatively stable trend. With a 5.3 % decrease in the last year, overall fish production totalled 57 895 tonnes. Inland aquaculture decreased by 46.6 %, falling to a total of 5 207 tonnes, while marine aquaculture grew by 2.6 % to produce 52 688 tonnes.

Marine and inland aquaculture: fish production (tonnes)



Source: JACUMAR, MAPA

With regard to marine aquaculture, the following species accounted for the greatest production volumes: sea bass (*Dicentrarchus labrax*) (24 688 tonnes), sea bream (*Sparus aurata*) (12 835 tonnes) and turbot (*Scophthalmus maximus*) (7 318 tonnes).

Mussel (*Mytillus sp.*) production in the last decade has averaged around 250 000 tonnes. Year-to-year variations are not conditioned by production capacity but rather by the frequency of red tides, which prevent regular harvesting of molluscs. In 2016, mussel production totalled 245 547 tonnes. Mussels are produced in five autonomous communities, although they are primarily harvested in Galician estuaries on offshore rafts. Although Galicia produces 97 % of the national total, mussels are also produced in Catalonia, Andalusia, Valencia and the Balearic Islands.

In 2016, inland organic aquaculture production increased by 10.6 % to 457 tonnes, while marine production fell to 150 tonnes.

The number of establishments dedicated to aquaculture production in Spain in 2016 remained relatively stable. Of the 5 293 registered establishments, 5 055 were used for marine aquaculture and 238 for inland aquaculture.

Definition of the indicator:

The indicator shows aquaculture production (in tonnes) in Spain based on statistics provided by JACUMAR.

Methodological notes:

- Information on aquaculture in Spain is provided by JACUMAR, which has been compiling data on the production and value of marine and inland aquaculture in Spain since 1985, as required by Law 23/1984 of 25 June 1984 on marine farming. To that end, it requests data from the directorate-generals for aquaculture in the autonomous communities. It then consolidates, validates and makes this data available for consultation on the Ministry of Agriculture, Fisheries and Food website.
- JACUMAR provides production data on the quantity of each farmed species that leaves the establishment after completing one or more phases of its life cycle.
- The characteristics and references to organic aquaculture are those established in Regulation (EU) 2018/848 of the European Parliament and of the Council of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007.

Source:

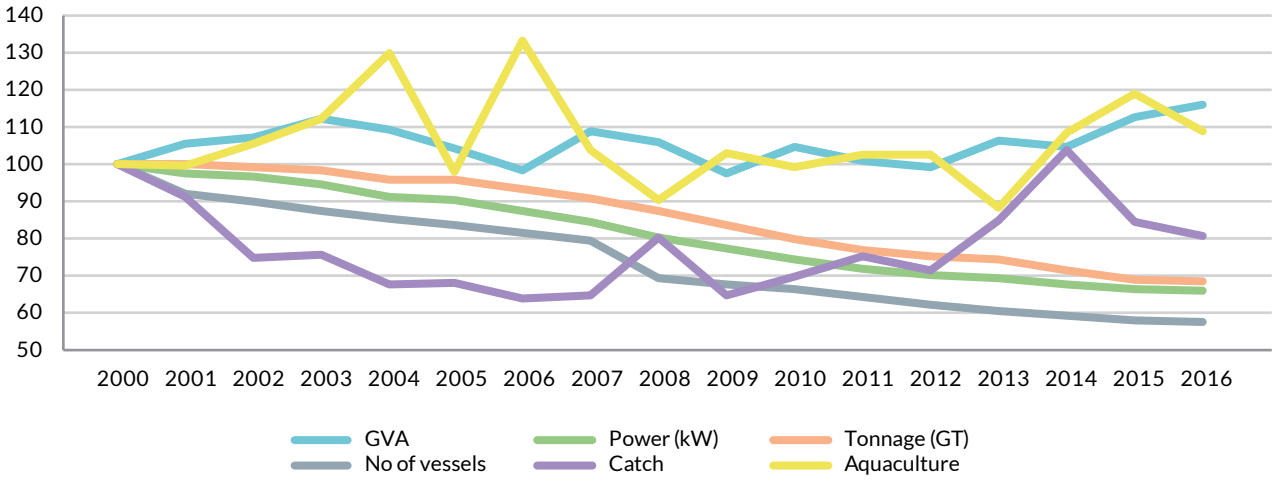
JACUMAR. Ministry of Agriculture, Fisheries and Food.

Recommended websites:

- http://www.mapa.gob.es/es/pesca/temas/acuicultura/
- http://www.apromar.es/content/la-acuicultura-en-españa-2017
- http://www.observatorio-acuicultura.es

Eco-efficiency **in fishing and aquaculture**

Eco-efficiency in fishing and aquaculture.
Index: 2000 = 100



Source: INE, Eurostat, MAPA

- *The changes in catch volume, as well as in Spain's fishing fleet capacity, are a direct result of implementing the sustainability criteria contained in the Common Fisheries Policy*
- *In 2016, GVA increased slightly while fishing fleet size, tonnage and power, catches and aquaculture production all decreased*

One of the main objectives of the Common Fisheries Policy is to manage fleet capacity to ensure the sustainable exploitation of our renewable natural resources. The fisheries sector in Spain, which is characterised by its fishing fleet capacity and catches, plays a crucial role in the economy.

According to the report titled Facts and figures on the common fisheries policy: 2016 edition, fishing activity in 2015 generated more than half of the local jobs in some European coastal communities. This report also states that, at EU level, Spain accounts for a quarter of the employment in the fisheries sector. Between them, Spain, Italy, Greece and Portugal provide around 70 % of employment in the industry. In terms of production, the aquaculture sector is becoming increasingly important.

As a result of its adaptation to European guidelines, the Spanish fishing sector underwent an adjustment from 2000 to 2016 that was aimed at reducing fishing intensity, thus adapting the fleet to available resources. This resulted in a steady reduction in number of vessels, power (expressed in kW) and tonnage (GT) during this period. The number of vessels fell by 57.2 %, while power and tonnage were reduced by 34.1 % and 31.7 % respectively.

These changes were less pronounced in 2016, due to the fact that most of the adjustments had already been made. As a result, the number of vessels operating in national fisheries in 2016 decreased by 1.1 % (to 8 998 vessels), power by 0.5 % (to 525 863 kW), and tonnage by 0.7 % (to 14 2052 GT).

With respect to fishing fleet catches during this period, the dataset lacks a defined trend due to the establishment of total allowable catches and the distribution of these totals among the different fleets operating in the various fisheries (quotas). Between 2000 and 2016, the cumulative decrease in catches totalled 19.4 %. In the last year, catch volume fell by 4.6 % (from 901 512 to 859 745 tonnes).

In Spain, the aquaculture sector performed unevenly over 2000–2016, mainly due to year-on-year variations in mussel production (which represents more than 82 % of total production). Overall, both marine and inland aquaculture production increased by 8.9 % during this period, though a similar decline was recorded in the last year (-8.5 %).

In economic terms, the GVA of the agriculture, livestock farming and fishing sector in 2016 —as a whole and at current prices— showed a year-on-year increase of 3.1 %. Based on INE data (Spanish National Accounts. 2000 baseline), the predicted GVA for 2016 rises to EUR 28.090 billion. According to this dataset, the provisional value for 2015 was EUR 27.266 billion, while the value that was already confirmed for 2014 reached EUR 25.260 billion. Over 2000–2016, GVA as a whole increased by 16.3 %.

Definition of the indicator:

The indicator shows the relationship between the GVA of agriculture, livestock farming and fishing, in addition to the variables that characterise the Spanish fishing sector (number of vessels, fishing fleet capacity in power and tonnage, catch volume) and aquaculture (total sector production).

Methodological notes:

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

Source:

- GVA: Spanish National Accounts. INE.
- No of vessels, power and tonnage: Secretariat-General for the Sea. Ministry of Agriculture, Fisheries and Food.
- Catches: Eurostat. Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Total all fishing areas.
- Marine aquaculture: JACUMAR, Secretariat-General for the Sea. Ministry of Agriculture, Fisheries and Food.

Recommended websites:

- http://www.mapa.gob.es/es/pesca/temas/
- http://www.mapa.gob.es/es/pesca/temas/acuicultura/

2.15 TOURISM

Tourism has experienced significant growth for decades, becoming a key sector of the economy and international trade of numerous countries. In 2017, according to data from the World Tourism Organisation (UNWTO), worldwide tourism, with 1.323 billion tourists, continued to grow. Compared to the previous year, the number of tourists increased by 7.1 % (a rise of almost 88 million).

In 2017, Europe, with 671 million tourists, continued to be the destination of choice for the greatest number of foreign tourists —8.3 million more than in 2016— followed by Asian and Pacific countries, with 324 million international tourists, an increase of 7 % with respect to 2015 and 22.6 % compared to 2014. The areas with the lowest number of international tourists were Africa and the Middle East, with 63 million and 58 million, respectively, as these destinations are not recommended due to security concerns.

Along with the economic benefits generated by the sector, conventional tourism's magnitude means it also produces negative effects on the environment, such as the urbanisation of natural areas, waste production, pollution, overconsumption of resources, etc., in addition to impacting local economies and societies. In this context, sustainable tourism makes ever more sense, which is why 2017 was declared the International Year of Sustainable Tourism for Development.

According to the UNWTO, sustainable tourism can be defined as '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 host communities.' Therefore, sustainable tourism must:

- Make optimal use of environmental resources, maintaining essential ecological processes and helping to conserve natural resources and biodiversity.
- Respect the sociocultural authenticity of host communities and conserve their built and cultural assets and traditional values.
- Ensure viable, long-term economic operations that provide fairly distributed socioeconomic benefits and contribute to poverty alleviation.

Sustainable tourism should also maintain a high level of tourist satisfaction and serve as an educational tool to directly raise tourists' awareness about the importance of conserving both urban and rural spaces.

The benefits of sustainable tourism include the following:

BENEFITS OF SUSTAINABLE TOURISM

SOCIAL BENEFITS:

- Recovery of rural areas.
- Promotion of infrastructure improvements and works of community interest.
- Improvement of the quality of life of the local population.
- Fostering of good practices among tourists.

CULTURAL BENEFITS:

- Promotion of the restoration, conservation and use of archaeological sites and architectural monuments.
- Provision of added value to saints' days and other local holidays, customs and traditions.
- Respect for the local population's sociocultural environment.
- Fostering of tolerance and cultural exchange.

ENVIRONMENTAL BENEFITS:

- Encouragement of responsible consumption.
- Promotion of environmentally balanced development.
- Reduction of environmental impact.
- Generation from flora and fauna of economic benefits for the local population.

ECONOMIC BENEFITS:

- Promotion of local product consumption.
- Contribution to reducing poverty and emigration to large cities.
- Generation of local employment.
- Encouragement of development of tourism enterprises.

Foreign tourists per resident

- In 2017, almost 82 million international tourists visited Spain, 8.2 % more than in the previous year. The most visited autonomous communities were Catalonia, the Canary Islands, the Balearic Islands and Andalusia.

- Air transport was the mode of entry most used by foreign tourists arriving in Spain (66.6 million tourists, 81 % of the total), followed by road transport (13 million tourists, 15.7 % of the total).

Tourist population equivalent

- In the ten destinations receiving the highest number of tourists, which are all coastal regions, the Tourist Population Equivalent (TPE) amounted to over 530 000 people per day in 2017.
- The island of Majorca, with nearly 46 million overnight hotel stays (125 000 people/day), remained the destination receiving the highest number of tourists.

Rural tourism: accommodation, capacity, tourists and overnight stays

- As regards the number of travellers and overnight stays, the positive trend seen in 2016 continued in 2017, increasing in the latter by approximately 11 %. Available accommodation and capacity fell slightly.
- In 2017, the autonomous communities with the greatest number of establishments offering accommodation were Castile and Leon, Andalusia, Catalonia and Castile-La Mancha, which altogether comprised 57 % of Spain's rural tourist accommodation.

Foreign tourists per kilometre of coast

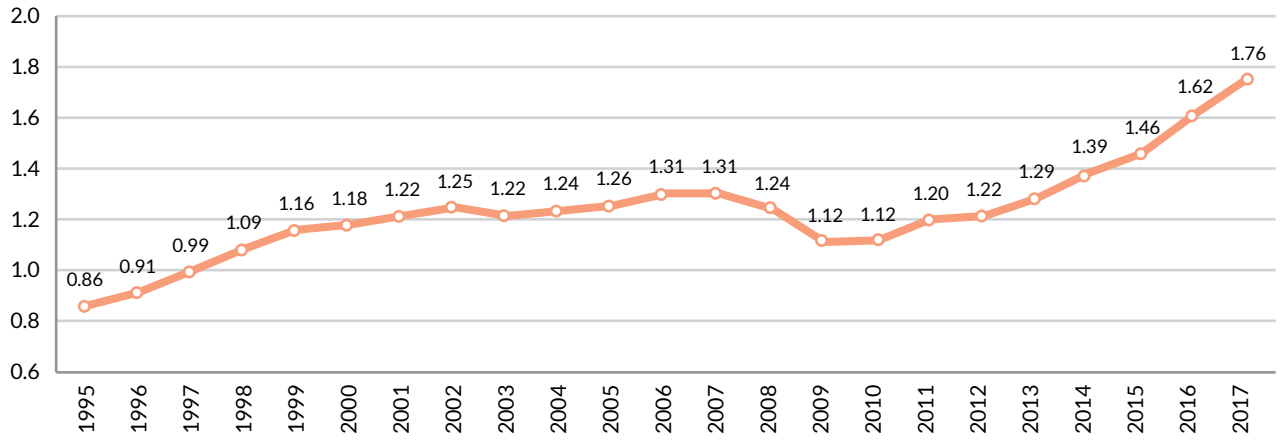
- The number of foreign tourists per kilometre of Spanish coast increased by 7.6 % in 2017, amounting to a ratio of 7 025 tourists per kilometre of coast. The main destinations were Catalonia, Valencia, the Balearic Islands and the Canary Islands.
- In 2017, the coast was the most popular tourist destination in Spain, receiving 88 % of foreign tourists. A total of 72 million international tourists visited a coastal autonomous community.
- 54 million tourists chose the Mediterranean and southern coasts (75.4 % of the total), 14 million opted for the Canary Islands (19.7 % of the total) and 3.5 million visited the Cantabrian and Galician coasts (4.9 % of the total).

Number of visitors to national parks

- In 2017, national parks received just over 15.5 million visitors, which is equivalent to 40.3 visitors per hectare. Of them, the Canary Islands' national parks, which account for 8.5 % of the total park area, received 48 % of the visits, equivalent to a ratio of 228 visitors per hectare.
- The number of visitors to national parks rose by 3.3 % in 2017. Over the last decade, growth amounted to 43 %, while there has been a 75 % increase since 1997.

Foreign tourists **per resident**

Foreign tourists per resident



Source: Turespaña, INE

- ***In 2017, almost 82 million international tourists visited Spain, 8.2 % more than in the previous year. The most visited autonomous communities were Catalonia, the Canary Islands, the Balearic Islands and Andalusia***
- ***Air transport was the mode of entry most used by international tourists arriving in Spain (66.6 million tourists, 81 % of the total), followed by road transport (13 million tourists, 15.7 % of the total)***

Over 2009–2017, the increase in the number of international tourists visiting Spain amounted to 56.7 %, while the Spanish population fell by 0.4 % during the same period.

In 2017, the tourists-per-resident ratio reached 1.76, although distribution nationwide was very uneven. For example, the autonomous communities that received the most tourists (the Balearic Islands, the Canary Islands and Catalonia) had ratios of 12.27, 6.15 and 2.41 tourists per resident, respectively. At the other end of the scale, the lowest ratios of tourists per resident were recorded in Extremadura (0.32), Asturias (0.27), Castile-La Mancha (0.11) and Ceuta and Melilla (0.05).

The absolute values for tourism are an indication of how important this sector is to Spain and each of its autonomous communities. In 2017, Spain received almost 82 million foreign tourists, 8.2 % more than in the previous year. The destinations with the greatest numbers of international tourists were Catalonia, ranked first with more than 18 million (23.4 % of all tourists), followed by the Balearic Islands with 13.7 million (17.6 % of the total), the Canary Islands with 13 million (16.7 % of the total), Andalusia with 11 million (14.2 % of the total) and Valencia with 8 million (10.9 % of the total). Meanwhile, Castile-La Mancha and Rioja were the least-visited autonomous communities, with 214 000 (0.3 % of the total) and 112 000 (0.1 % of the total) foreign tourists, respectively.

Number of non-resident tourists by mode of entry

	2007	2015	2016	2017 (P)	Change 2017/2016	Change 2017/2007	% of total
Total	59 193 289	68 215 225	75 563 198	81 786 364	8.2	38.2	100.0
Air	44 324 017	54 215 805	60 582 406	66 645 609	10.0	50.4	81.5
Road	13 086 851	12 487 244	13 038 391	12 877 598	-1.2	-1.6	15.7
Port	1 532 129	1 069 731	1 578 287	1 889 587	19.7	23.3	2.3
Rail	250 292	341 180	364 115	373 571	2.6	49.3	0.5

(P) = provisional data

Source: Turespaña, INE

Air transport was the mode of entry most used by international tourists arriving in Spain (66.6 million tourists, 81 % of the total), followed by road transport (13 million tourists, 15.7 % of the total). Finally, maritime and rail transport continue to constitute the least used, with 1.5 million (2.3 %) and 373 000 (0.5 %) foreign tourists, respectively.

Definition of the indicator:

Ratio of the number of international visitors to the population, in Spain and its autonomous communities.

Methodological notes:

- The indicator shows the relationship between the number of foreign tourists and Spain's population. It is used to determine tourist pressure on destinations, since the sustainability of the sector is linked, *inter alia*, to an appropriate ratio between the number of tourists and the resident population. A tourist is considered to be any person travelling to a place other than his/her usual place of residence, who stays at least one night for a purpose other than the exercise of paid activity.
- Frontur, the survey on tourist movement on borders and the source of the data for the indicator, was carried out by Turespaña until 1 October 2015 and thereafter by the INE. This modification involved a methodological change in the collection and processing of the associated information.

Source:

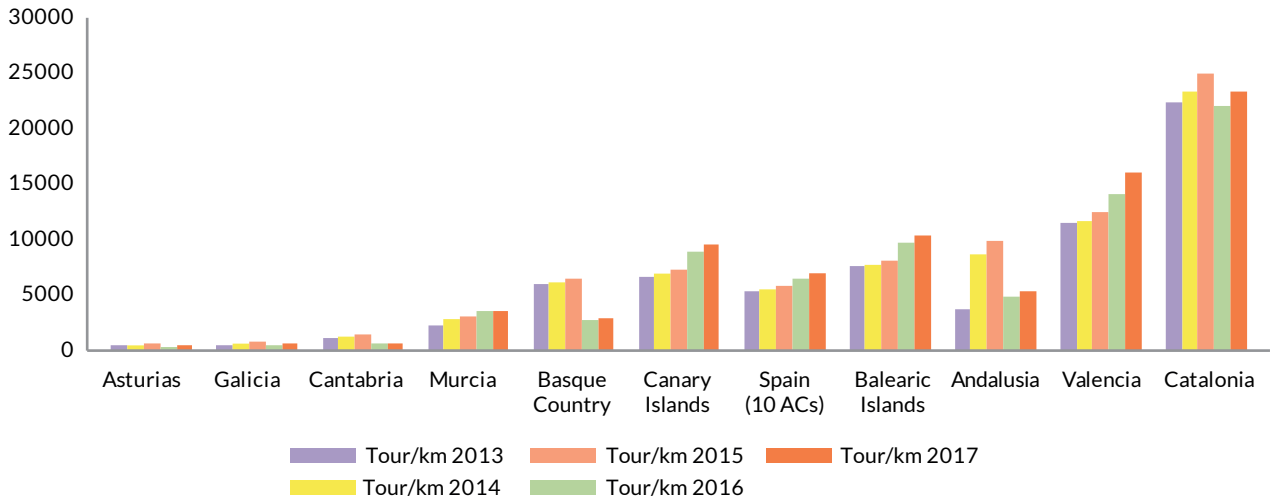
- 2017 International Tourism Results, World Tourism Organisation (UNWTO)
  - http://media.unwto.org/es/press-release/2018-01-15/resultados-del-turismo-internacional-en-2017-los-mas-altos-en-siete-anos
- INE, official figures from the municipal register and Frontur (Spanish Border Survey of Inbound Tourism).
  - http://www.ine.es/jaxiT3/Datos.htm?t=2852
  - http://www.ine.es/jaxiT3/Tabla.htm?t=10835&L=0

Recommended websites:

- 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

Foreign tourists **per kilometre of coast**

Foreign tourists per kilometre of coast



Source: MITECO, INE

- ***The number of foreign tourists per kilometre of Spanish coast increased by 7.6 % in 2017, amounting to a ratio of 7 025 tourists per kilometre of coast. The main destinations were Catalonia, Valencia, the Balearic Islands and the Canary Islands***
- ***In 2017, the coast was the most popular tourist destination in Spain, receiving 88 % of international tourists. A total of 72 million foreign tourists visited a coastal autonomous community***
- ***54 million tourists chose the Mediterranean and southern coasts (75.4 % of the total), 14 million opted for the Canary Islands (19.7 % of the total) and 3.5 million visited the Cantabrian and Galician coasts (4.9 % of the total)***

In 2017, the coast remained the most popular tourist destination in Spain. That year, 72 million international tourists visited a Spanish coastal autonomous community (88 % of all foreign tourists), which is equivalent to a ratio of 7 025 tourists per kilometre of coast.

Although the most popular tourist destination was the coast, the distribution of foreign tourists per kilometre of coast was uneven:

- The Mediterranean and southern coasts —the areas receiving the highest number of international tourists— received 54 million (75.4 % of the total). The autonomous communities with the highest ratios of tourists per kilometre of coast were Catalonia (23 459 tourists/km), Valencia (16 156 tourists/km) and the Balearic Islands (10 369 tourists/km). At the other extreme were Andalusia and Murcia, with 5 393 and 3 662 tourists per kilometre, respectively.
- Meanwhile, 14 million foreign tourists (19.7 % of the total) visited the Canary Islands, which is equivalent to 9 572 tourists per kilometre of coast.
- The Bay of Biscay received 3.5 million visitors (4.9 % of the total). The most popular destination there was the Basque Country (3 021 tourists/km), while the lowest rates in 2017 were recorded by Cantabria (674 tourists/km), Asturias (448 tourists/km) and Galicia (683 tourists/km).

The year-on-year change shows that the indicator rose in most coastal communities (except Murcia). Galicia and Valencia registered the highest increases (20.1 % and 13.9 %, respectively). The destinations receiving the highest numbers of international tourists by autonomous community were Catalonia (19 million), the Canary Islands (14 million) and the Balearic Islands (13.7 million), as opposed to Asturias and Cantabria (with approximately 300 000 and 400 000 tourists, respectively), which were the least-visited destinations in absolute terms.

Definition of the indicator:

The indicator shows the ratio between the number of foreign tourists whose final destination is the coast and the length of coastline.

Methodological notes:

Data on the length of the Spanish coast are taken from the 2014 report on the state of Spain's natural heritage and biodiversity drawn up by the Directorate-General for Biodiversity and Environmental Quality at the MITECO; these data updated those used in previous editions of the Environmental Profile, which were those available from the IGN (National Geographic Institute).

Source:

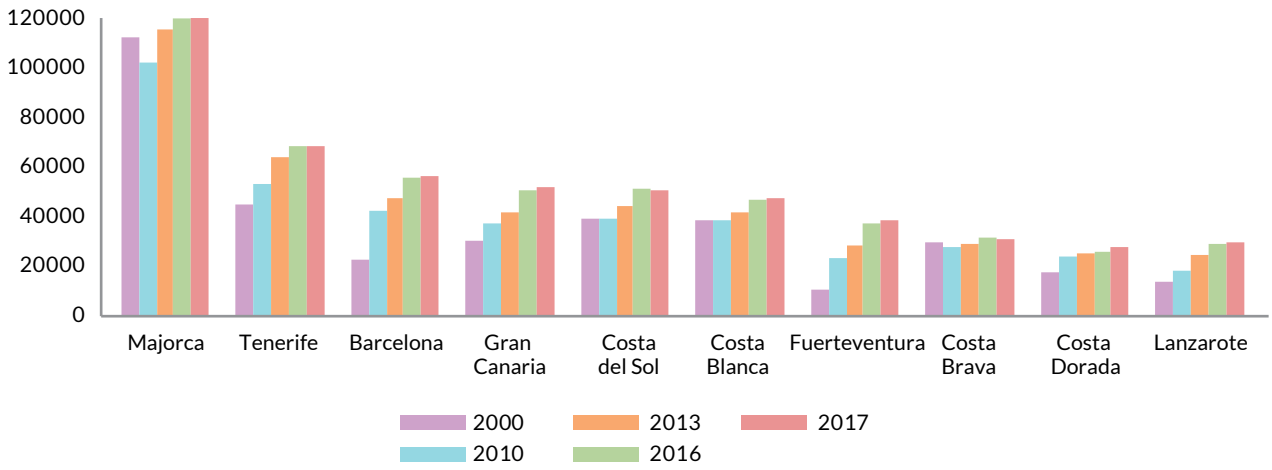
INE, Spanish Border Survey of Inbound Tourism (Frontur). http://www.ine.es/jaxiT3/Tabla.htm?t=23988&L=1

Recommended websites:

- 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

Tourist population equivalent

Tourist population equivalent (TPE) in the principal tourist destinations. 2000–2017 (overnight stays/day)



Source: INE

- ***In the ten destinations receiving the highest number of tourists, which are all coastal regions, the Tourist Population Equivalent (TPE) amounted to over 530 000 people per day in 2017***
- ***The island of Majorca, with nearly 46 million overnight hotel stays (125 000 people/day), remained the destination receiving the highest number of tourists***

The total number of overnight hotel stays in coastal areas amounted to nearly 194 million in 2017, putting the average TPE at 530 000 people per day and producing significant tourist pressure. The Costa Daurada was the area that recorded the highest increase in TPE (8.2 %) with respect to 2016, while the TPE on the Costa del Sol and the Costa Brava decreased by -2 % and -1.2 %, respectively.

In 2017, Mallorca was the destination receiving the highest number of tourists (46 million overnight stays, 125 000 people/day), with a 2.5 % rise in the TPE compared to the previous year. Behind it were Tenerife (25 million overnight stays, 68 000 people/day), Barcelona (20 million overnight stays, 56 000 people/day) and Gran Canaria (18 million overnight stays, 52 000 people/day).

In 2017, the Pyrenees region, the only non-coastal tourist area included in the INE's Hotel Occupancy Survey, received 3.8 million overnight stays (more than 10 000 people/day), marking an increase of 7.1 % with respect to the previous year.

Definition of the indicator:

Ratio between annual overnight hotel stays in an area and number of days in the year. It makes it possible to estimate the number of tourists per day in terms of equivalent resident population of that area. The ratio is calculated for the ten areas receiving the highest number of tourists included in the Hotel Occupancy Survey published annually by the INE.

Methodological notes:

The TPE indicator estimates the daily maximum number of people who inhabit the surveyed areas in addition to the local resident population. From an environmental perspective, the indicator's value lies in its ability to highlight pressure caused by the population increase in the areas that receive the greatest numbers of tourists.

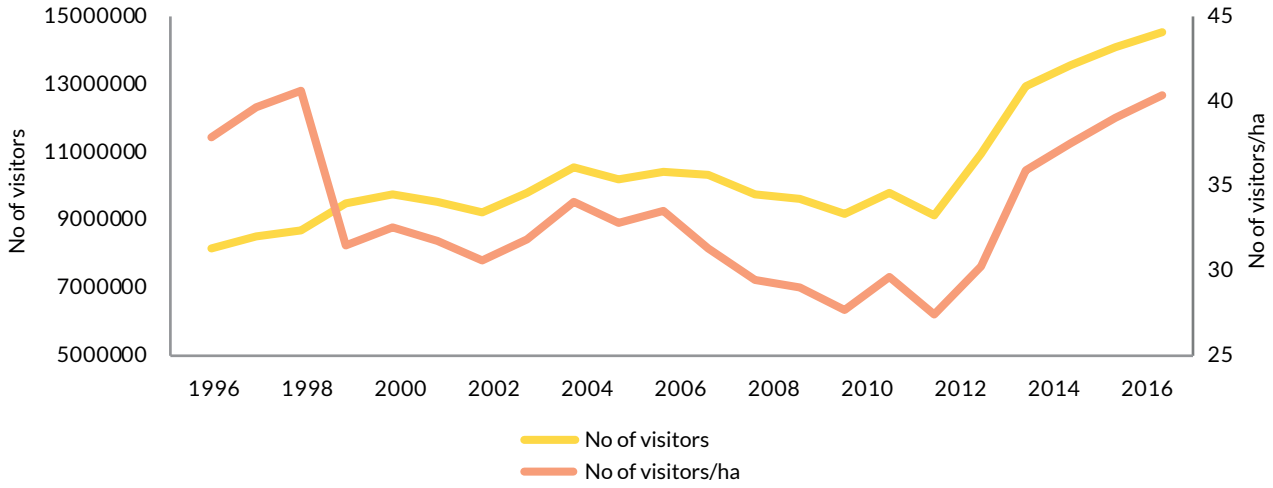
Spain's principal tourist destinations are well-established, since overnight stays in those locations have remained stable over the last 17 years. Nevertheless, there were some exceptions, such as the Costa Daurada, Lanzarote and the islands of Ibiza and Formentera, which have experienced fluctuations, forming (or not forming) part of the list of the ten areas with the highest number of overnight stays depending on the year.

Source:

INE, Hotel Occupancy Survey http://www.ine.es/jaxiT3/Tabla.htm?t=2039&L=1

Number of visitors to **national parks**

Visitors to national parks



Source: OAPN, MITECO

- ***In 2017, national parks received just over 15.5 million visitors, which is equivalent to 40.3 visitors per hectare. Of them, the Canary Islands' national parks, which account for 8.5 % of the total park area, received 48 % of the visits, equivalent to a ratio of 228 visitors per hectare***
- ***The number of visitors to national parks rose by 3.3 % in 2017. Over the last decade, growth amounted to 43 %, while there has been a 75 % increase since 1997***

Due to their intrinsic ecological and cultural value, national parks are peerless nature tourism destinations. In fact, between 1997 and 2017, the number of annual visitors to Spain's national parks rose from 8.8 million to 15.5 million, constituting a 75 % increase.

In general, visits to national parks have shown a highly positive trend since 1997, as indicated by this 75 % rise. This increase in visitors is explained by both the boom in nature tourism and the designation of new sites under this protection category: Sierra Nevada (1999), the Atlantic Islands of Galicia (2003), Monfragüe (2007) and Sierra de Guadarrama (2013). The national parks with the greatest surges in visitor numbers since 1997 are Cabañeros (274 %), the Cabrera Archipelago (192 %) and Caldera de Taburiente (150 %). At the other end of the scale, shares of visitors to the Tablas de Daimiel, Doñana, and Ordesa and Monte Perdido national parks have fallen since 1997, by 40 %, 31 % and 6 %, respectively.

In 2017, national parks received 15.5 million visitors, which is equivalent to 40 visitors per hectare. Of them, the Canary Islands' national parks, which account for 8.5 % of the total park area, received over 50 % of the visits, equivalent to a ratio of 228 visitors per hectare. Meanwhile, the Sierra Nevada, Doñana and Cabañeros national parks had the lowest visitor ratios per hectare, registering 8.5 % and 3 %, respectively.

With respect to the previous year, 2017 showed an upward trend in number of visits to national parks, recording a 3.3 % increase. In terms of visitor numbers, the national parks that registered growth were Sierra de Guadarrama (10.3 %), the Atlantic Islands of Galicia (10 %), Cabañeros (7.8 %), Teide (6.1 %) and Garajonay (4.2 %). Meanwhile, the national parks that received fewer visitors were Ordesa and Monte Perdido (-6.9 %), Tablas de Daimiel (-6.1 %) and Aigüestortes i Estany de Sant Maurici (-4.5 %). Visitor numbers remained relatively constant in the Doñana, Timanfaya, Cabrera Archipelago, Monfragüe and Caldera de Taburiente national parks.

Changes in number of visitors 2016–2017

Source: OAPN, MITECO

Definition of the indicator:

The indicator shows, in absolute and relative terms, the annual trend in the number of visitors to the various areas that make up the National Parks Network in relation to the parks' surface area.

Methodological notes:

This indicator is regularly used to assess the pressure to which protected areas are subject as a result of tourism. For national parks, this indicator is calculated as the ratio between the number of visitors to and the surface area of a specific natural area.

Source:

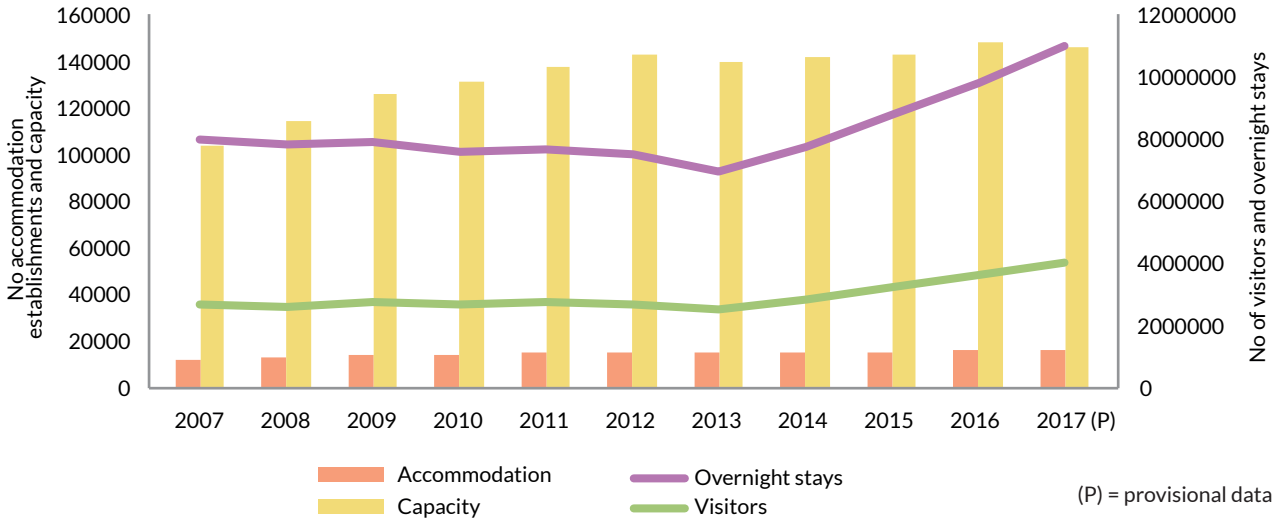
OAPN. Ministry for Ecological Transition. Data provided on express request.

Recommended websites:

- http://www.miteco.gob.es/es/parques-nacionales-oapn/

Rural tourism: **accommodation, capacity, tourists and overnight stays**

Rural tourism 2007–2017



(P) = provisional data

Source: INE

- ***As regards the number of travellers and overnight stays, the positive developments seen in 2016 continued in 2017, increasing in the latter by approximately 11 %. Available accommodation and capacity fell slightly***
- ***In 2017, the autonomous communities with the greatest number of establishments offering accommodation were Castile and Leon, Andalusia, Catalonia and Castile-La Mancha, which altogether comprised 57 % of Spain's rural tourist accommodation***

Since 2007, the number of tourists has increased by 51 %, while that of overnight stays has risen by 37.8 %. Available accommodation and capacity also rose, by 35 % and 41 %, respectively.

Compared to 2016, in 2017, the available capacity (146 093 beds) and accommodation (15 649 establishments) fell slightly, by 1.2 % and 0.1 %, respectively, although the numbers of visitors (4 023 984) and of overnight stays (10 982 085) both rose by 11 %. Furthermore, jobs in rural tourism declined by 5.15 %, falling from 22 584 people employed in this sector to 21 422 in 2017.

The autonomous communities with the greatest number of establishments offering accommodation in 2017 were Castile and Leon (3 355), followed by Andalusia (2 028), Catalonia (1 985) and Castile-La Mancha (1 571). In these communities, the number of establishments offering accommodation amounted to 8 939, accounting for 57.12 % of Spain's rural holiday accommodation.

By rural tourism capacity in 2017, Castile and Leon ranked first with 29 192 beds, followed by Catalonia (17 283), Andalusia (16 991), Castile-La Mancha (13 516), Asturias (11 527) and Valencia (10 020). These communities provide 98 529 beds, accounting for 66.44 % of Spain's total capacity.

In terms of the number of overnight stays per year, Castile and Leon (1.6 million), Catalonia (1.1 million) and the Balearic Islands (1 million) recorded the highest numbers, constituting 35.75 % of total overnight stays.

Finally, Rioja and Murcia, with 39 802 and 52 642 tourists, respectively, were the least-visited autonomous communities in 2017. Both communities registered year-on-year growth, however, of 20 %.

Definition of the indicator:

The indicator shows developments in the main variables affecting rural tourism: number of establishments and their capacity and number of visitors and overnight stays in rural accommodation, taken from the Non-Hotel Tourist Accommodation Occupancy Survey.

Methodological notes:

Rural tourism accommodation refers to establishments or houses that charge for tourist accommodation (with or without other complementary services) and that are listed in the Tourist Accommodation Register maintained in each autonomous community. These establishments tend to share several common features, such as being located in buildings typical of the local architectural style or on working farms (agro-tourism).

Source:

- INE, Rural tourism accommodation: occupation survey and price index
  http://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176963&menu=resultados&secc=1254736195429&idp=1254735576863

2.16 TRANSPORT

Transport is one of the most important sectors of Spain's economy. It is a steadily growing area that, in addition to its economic value, plays a significant role in society due to its impact on human health, the environment and sustainability.

The use of private vehicles has continued to increase in recent years, thus contributing to urban pollution. The aim is to establish an urban sustainability model that adopts smart mobility systems able to provide benefits for the environment and for the population as a whole. This will mitigate congestion and urban strain, improve accessibility and save people time, while simultaneously reducing dependence on fossil fuels and, thus, the emission of air pollutants.

An outdated vehicle fleet leads to a rise in accidents and their associated risk of mortality, as well as an increase in air pollutant emissions. In this regard, it is worth noting that Spain's vehicle fleet, which was estimated to have mean age of 11.9 years in 2016, is older than the European average.

To improve eco-efficiency, newly manufactured vehicles are equipped with technologies that help reduce emissions of greenhouse gases and other pollutants. A new vehicle is estimated to emit one-third less CO_2 than one that is 10 years old. For that reason, efforts must be focused on renewing the Spanish vehicle fleet by encouraging buyers to purchase units with newer and cleaner technologies and investing in R&D in transport.

Investment in the transport sector decreased throughout the financial crisis, but in 2016 this trend took a sharp turn and increased by a considerable 58 % over the previous year. However, despite the major contribution of transport to Spain's GVA, investment in this sector is lower than in others.

The drive towards alternative energy in Spain is a great opportunity for industry, technology, the economy and, of course, the environment. As regards existing legislation in the sector, Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 establishes a common framework of measures and minimum requirements for the use of alternative fuels.

Under this Directive, each Member State has drawn up a national policy framework. In Spain, on 9 December 2016, the *Marco de acción nacional español de energías alternativas en el transporte* (Spanish National Policy Framework for Alternative Energy in Transport) was approved. This document describes the current situation and expected developments, as well as identifying goals and opportunities to reduce the amount of air pollutants emitted by the various modes of transport, thus contributing to fulfilment of the European Council's objective to reduce greenhouse gas emissions by at least 40 % by 2030 (compared to 1990 levels).

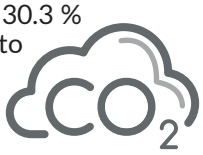
In 2016, there was a 2.85 % increase in vehicles equipped with alternative technologies, and the number of hybrid and electric vehicles in Spain rose to 35 765. With respect to 2015, the number of hybrid vehicles registered increased by 68 % and that of electric vehicles by 51.5 %.

Demand for inter-city transport: passengers and freight

- The transport sector continued to show steady growth in 2016. Total transport volume, both passenger and freight, increased in all modes and segments except domestic rail freight, which fell by 1.5 %.
- Road transport continues to be the most commonly used mode in recent years, covering 87.2 % of passenger demand and 78.9 % of freight demand.
- In 2016, passenger transport increased at a faster pace than freight transport with respect to the previous year (growth rates of 4.8 % and 2.0 % respectively).

Pollutant emissions by transport

- Transport was responsible for 30.3 % of CO_2 equivalent emitted into the air in Spain. Road and domestic air transport are the biggest contributors to emissions in the sector.



- Over the last 10 years, emissions of GHGs, acidifying substances and ozone precursors have been reduced by 20.1 %, 46.3 % and 49.3 % respectively.
- The average emissions level of a new car sold in 2016 was 118.1 grams of CO_2 per kilometre, which is significantly below the EU's 2015 target of 130 g/km.

Passenger vehicle fleet by fuel type

- The vehicle fleet in Spain has continued its upward trend, recording a 2.1 % increase in 2016.
- By fuel type, diesel vehicles have been more prevalent than petrol vehicles since 2008. Diesel vehicles accounted for 57.3 % of the fleet in 2016, compared to 42.7 % for petrol.

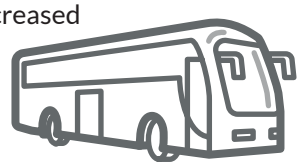
- The passenger car fleet is relatively dated: the average age of passenger cars in Spain was 11.4 years in 2015, while the European average was 10.7 years.

Final energy consumption by transport

- Over the last 10 years, energy consumption by transport has decreased by 17.7 %. The largest declines were seen in rail and maritime transport.
- By fuel type, diesel accounted for 74.5 % of final energy consumption by transport in 2016, followed by petrol with 16.0 %.
- In 2016, energy consumption increased for all modes of transport except rail, which decreased by 2.0 % compared to the previous year.

Eco-efficiency of transport in terms of GVA, demand, air emissions and final energy consumption

- Since 2000, GVA for transport has increased by 78.4 %. The other variables have continued the upward trend they began in 2014 and 2015, which marked the start of recovery from the financial crisis.
- With respect to 2015, domestic passenger demand in 2016 increased by 4.8 % and freight demand by 2 %, while energy consumption and GHG emissions increased by 3.5 % in both cases.



Demand for inter-city transport: **passengers and freight**

Total volume of inter-city transport

Source: Ministry of Public Works

- ***The transport sector continued to show steady growth in 2016. Total transport volume, both passenger and freight, increased in all modes and segments except for domestic rail freight, which fell by 1.5 %***
- ***Road transport continues to be the most commonly used mode in recent years, covering 87.2 % of passenger demand and 78.9 % of freight demand***
- ***In 2016, passenger transport increased at a faster pace than freight transport with respect to the previous year (growth rates of 4.8 % and 2.0 % respectively)***

The demand for both passenger and freight transport is closely related to the country's economy. During the financial crisis there was a clear reduction in transport, particularly of goods. However, this trend changed in 2014 and 2015.

Freight transport is recovering at a slower pace than passenger transport. The number of passenger-kilometres in 2016 was only 6.5 % lower than the peak in 2009 (463.5 billion passenger-kilometres). Conversely, freight transport —which experienced a sharp drop in demand in 2008— is still 23 % below the peak recorded in 2007 (422 billion tonne-kilometres).

Road transportation remains the most commonly used mode of transport. In 2016, 383 billion passenger-kilometres and 258.4 billion tonne-kilometres were recorded, corresponding to 87.2 % and 78.9 % of total domestic transport respectively.

As for passenger transport, just over 28 billion passenger-kilometres were recorded in 2016, with air transport increasing by 10.8 % over 2015 figures. A total of 230.337 million passenger journeys were made by plane, 29.4 % of these were domestic flights and 70.6 % international. The other modes of passenger transport have recorded smaller annual increases.

With regard to freight, maritime transport increased the most in 2016, (7.3 % on the previous year) whereas rail and pipeline transport fell slightly. Of the total tonne-kilometres transported, 3.24 % was carried by rail and 3.70 % by pipeline.

Domestic road freight transport in the EU-28 totalled over 1.195 trillion tonne-kilometres in 2016. Germany was the biggest contributor, accounting for 22.7 % of this volume. Spain represented 12.1 % of tonne-kilometres carried in Europe.

The ratio of Spain's transport demand to national GDP is comparable to that of the EU-28. In terms of freight transport, the ratio of tonne-kilometres to Spain's GDP is higher than the ratio for the rest of the EU-28 due to its greater intensity of freight transport.

Definition of the indicator:

The indicator shows the annual changes in demand for domestic passenger transport, measured in passenger-kilometres (p-km), and for freight, in tonne-kilometres (t-km).

Methodological notes:

- The unit of measurement used for passenger transport is passenger-kilometre (p-km), which is calculated by multiplying the annual number of passengers by the number of kilometres travelled.
- The unit of measurement used for freight transport is tonne-kilometre (t-km), calculated by multiplying the number of tonnes transported by the number of kilometres travelled.
- The road information refers to the 166 284 kilometres managed by central government, regional governments, provincial councils and island councils in 2014.
- The information on number of operations and number of air passengers relates to scheduled and chartered flights (statistical information from the Ministry of Public Works).

Source:

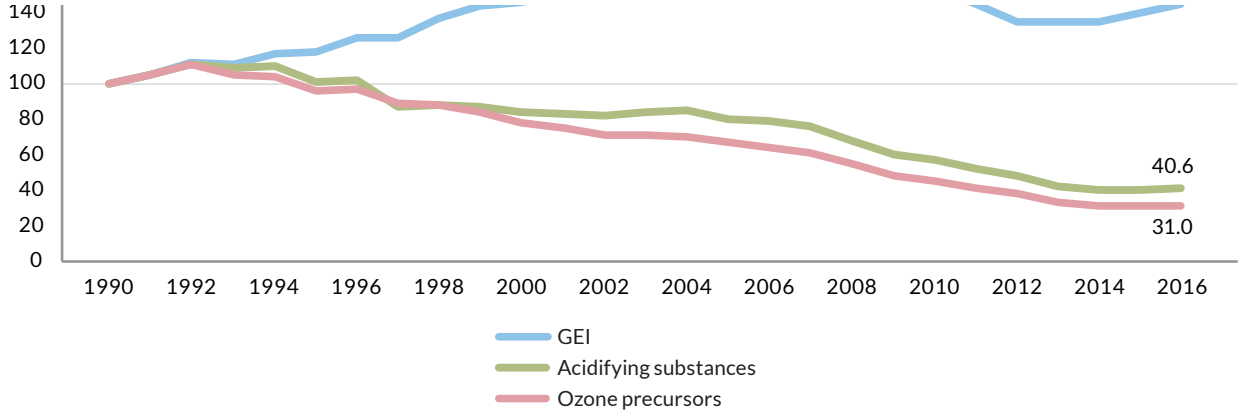
Ministry of Public Works. *Los transportes y las infraestructuras. Informe anual 2016* (Transport and infrastructure. 2016 annual report).
Ministry of Public Works. 2016 Statistical Yearbook. Chapter 16. Pipeline transport.

Recommended websites:

- https://www.fomento.gob.es/MFOM.CP.Web/handlers/pdfhandler.ashx?idpub=BTW033
- https://www.fomento.gob.es/NR/rdonlyres/B52C9B71-E5F3-4291-9840-4E8E221178D1/145400/16TranspTuberia_16.pdf

Pollutant emissions **by transport**

Emissions of GHGs, acidifying substances and tropospheric ozone precursors by transport (Index: 1990 = 100)



Source: MITECO

- ***Transport was responsible for 30.3 % of CO_2 equivalent emitted into the air in Spain. Road and domestic air transport are the biggest contributors to emissions in the sector***
- ***Over the last 10 years, emissions of GHGs, acidifying substances and ozone precursors have been reduced by 20.1 %, 46.3 % and 49.3 % respectively***
- ***The average emissions level of a new car sold in 2016 was 118.1 grams of CO_2 per kilometre, which is significantly below the EU's 2015 target of 130 g/km***

One of the transport sector's most negative effects on the environment is the volume of pollutants it emits into the air, primarily due to its heavy dependence on fossil fuels.

In 2016, a total of 86 320 kt of CO_2 equivalent was released into the air, 3.5 % more than in 2015 and 45.6 % more than in 1990. In addition to greenhouse gas emissions, emissions of acidifying substances and ozone precursors also increased over the last year: 2.6 % more acidifying substances and 1.6 % more ozone precursors.

Transport emissions in Spain in 2016 totalled 86 130.7 kt of CO_2 equivalent, a 45.6 % increase over 1990 levels due to greater demand for passenger and freight mobility. A decrease in emissions was recorded in 2007 as a result of the financial crisis, though they began to increase again in 2013 and continue to do so today.

The emission of other types of pollutants, however, has decreased. This could be due to advances in engines (e.g. improved pollutant reduction systems, such as particulate filters and selective catalytic reduction of nitrogen oxides) or to the use of alternatives to diesel and petrol.

Although transport emissions have continued to rise in recent years, they have not increased at the same rate as growth in the sector. While GHG emissions in 2016 increased by 3.5 % over the previous year, passenger demand increased by 4.8 % and freight demand by 2.0 %. Analysis of the data since 2010 shows that GHG emissions decreased by 5.5 %, while passenger and freight demands decreased by only 2.1 % and 1.6 % respectively.

In Spain, GHG emissions from transport account for around 30 % of the total, which is higher than the EU average (22 %). According to the European Environment Agency, GHG emissions in Europe in 2016 had increased by 18.3 % over 1990 levels.

Definition of the indicator:

The indicator shows the aggregate emissions of air pollutants from domestic transport in Spain. They are expressed as an index, in which 1990=100. Emissions of GHGs, acidifying substances, and ozone precursors are included.

Methodological notes:

- The most harmful air pollutant emissions by transport —either because of their toxicity and harm to human health or because of their environmental impact— are grouped under greenhouse gases (GHGs), acidifying and eutrophying gases, and tropospheric ozone precursor gases. GHG emissions (CO_2, CH_4 and N_2O) are expressed in CO_2 equivalents, which are calculated using the global warming potential of each gas based on the following factors: CO_2=1, CH_4=25 and N_2O=298. Emissions of acidifying and eutrophying pollutants (NO_x, NH_3 and SO_2) are represented as acid equivalents (hydrogen-producing potential), and are added together using the following weighting factors: 31.25 acid equivalent/kg for SO_2 (2.64 acid equivalent/g), 21.74 acid equivalent/kg for NO_x, expressed as NO_2, (1/46 acid equivalent/g) and 58.82 acid equivalent/kg for NH_3 (1/17 acid equivalent/g). Emissions of tropospheric ozone precursors (NMVOCs, NO_x, CO, and CH_4) have been estimated by using the tropospheric ozone depletion potential (expressed as NMVOC equivalent). The following weighting factors were employed: 1.00 for NMVOC, 1.22 for NO_x, 0.11 for CO, and 0.014 for CH_4.
- Emissions from the following Selected Nomenclature for Air Pollution (SNAP) categories are attributed to the transport sector: 07 (road transport), 08 02 (railways), 08 04 02 (national sea traffic within EMEP area), 08 05 (air traffic) and 01 05 06 (pipeline compressors).
- To calculate GHG emissions by air transport, consumption during complete domestic flights has been studied (i.e. take-off, travel and landing), whereas for acidifying substances and ozone precursors only take-offs and landings on national territory have been studied.

Source:

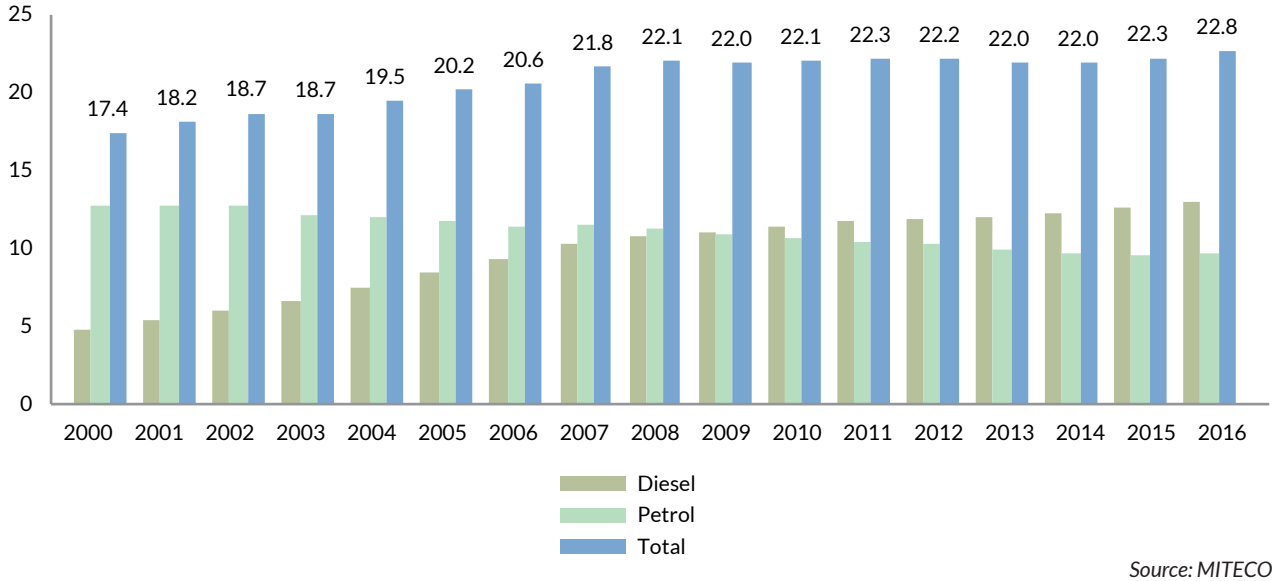
- Ministry for Ecological Transition. National Inventory of Greenhouse Gas Emissions. 1990–2016. 2018 edition. (*National Inventory Report*).

Recommended websites:

- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/
- https://www.eea.europa.eu/publications/term-report

Passenger vehicle fleet **by fuel type**

Passenger vehicle fleet by engine type
(million vehicles)



Source: MITECO

- ***The passenger car fleet has been increasing annually since 2000. It has grown by 30.4 % since that year, rising 2.1 % in 2016***
- ***By fuel type, diesel cars have been more prevalent than petrol cars since 2008. Diesel cars accounted for 57.3 % of the fleet in 2016, compared to 42.7 % for petrol***
- ***The passenger car fleet is relatively dated: the average age of passenger cars in Spain was 11.4 years in 2015, while the European average was 10.7 years***

In 2016, the vehicle fleet in Spain rose to 32 106 520 units (including trucks and vans, buses, passenger cars, motorcycles, industrial tractors, trailers and semi-trailers and other vehicles), which is 716 837 more than in 2015. This increase was seen across all vehicle types, with the industrial tractor fleet recording the most growth and trucks and vans the least.

The passenger car fleet in 2016, at just under 23 million units, represented 71.3 % of the total number of vehicles in Spain. By fuel type, diesel cars represented 57.3 % of the total, and the remaining 42.7 % were petrol.

Since 2000, the passenger car fleet has been increasing annually (with occasional exceptions in 2009, 2013 and 2014). Over that time, and after recording a 2.1 % rise in 2016, the fleet grew by 30.4 %.

With respect to vehicle registrations, there has been an upward trend since 2013. In 2016, a total of 1 230 104 new passenger cars were registered, accounting for 77.4 % of the overall number of vehicles registered and representing an 11.1 % increase on the previous year.

Meanwhile, ANFAC (Spanish Association of Automobile and Truck Manufacturers) estimated that 59.7 % of passenger cars in Spain would be more than 10 years old by 2016, and that over 50 % of the other vehicles would also have been on the road for more than 10 years. These data illustrate the degree to which the fleet is ageing.

The European passenger car fleet is also quite old, although to a lesser extent than in Spain. According to ACEA (European Automobile Manufacturers Association), the average age of passenger cars in Spain was 11.4 years in 2015, while the European average was 10.7 years.

In Spain, the price of both diesel and petrol remained stable throughout 2016, although it increased slightly (2.9 % for diesel and 2.6 % for petrol) as compared to prices in 2015. The oil price per barrel fell by around 16 % compared to 2015 (in 2016, the average price of oil was USD 42.84/barrel).

Definition of the indicator:
The indicator shows the number and share of passenger cars that make up the vehicle fleet by fuel type (diesel or petrol).

Sources:

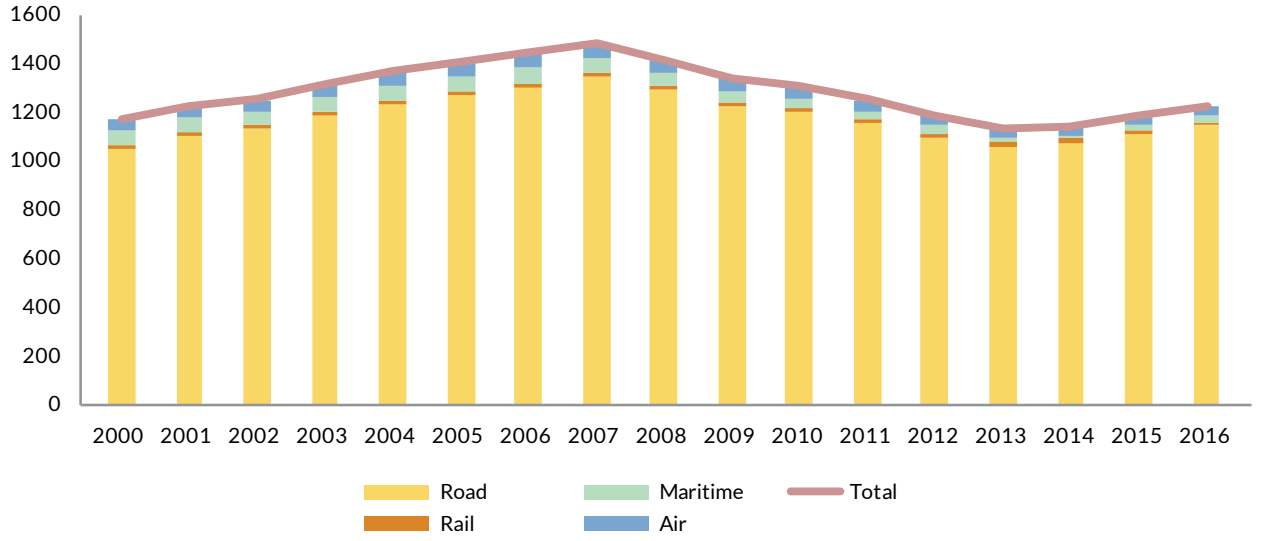
- Ministry for Ecological Transition. National Inventory of Greenhouse Gas Emissions. 1990–2016. 2018 edition. National Inventory Report.
- Directorate-General for Traffic. Road safety, statistics and indicators, vehicle fleet.

Recommended websites:

- http://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/
- http://www.dgt.es/es/seguridad-vial/estadisticas-e-indicadores/parque-vehiculos/

Final energy consumption **by transport**

Final energy consumption by transport (Petajoule: PJ)



Source: Ministry of Public Works and MITECO

- ***Over the last 10 years, energy consumption by transport has decreased by 17.7 %. The largest declines were seen in rail and maritime transport***
- ***By fuel type, diesel accounted for 74.5 % of final energy consumption by transport in 2016, followed by petrol with 16.0 %***
- ***In 2016, energy consumption increased for all modes of transport except rail, which decreased by 2.0 % compared to the previous year***

The transport sector is the biggest final energy consumer. Transport in Spain consumes more energy than in the rest of Europe. While its average energy consumption in Europe is 33.1 %, in Spain it reaches 41.9 %.

The total energy consumed by transport (national and international) amounts to 1 758 311 TJ. Approximately 70 % of this total (in Terajoules) is domestic traffic and the remaining 30 % is international traffic.

In 2016, energy consumption by transport in Spain was 3.5 % higher than the previous year. Road transport represents 93.8 % of total energy consumption and continues to be the sector's biggest energy consumer. Also in 2016, the consumption of all fuel types increased — most notably natural gas, which increased by a considerable 45 %.

Rail is the most efficient of all modes of transport. It is three times more energy-efficient than road passenger transport and four times more efficient than road freight transport. Air transport, conversely, is the least efficient. In spite of this, between 2007 and 2016, energy consumption fell by 37.2 %, though increases were seen in 2015 and 2016. Two of the factors that contributed to this decreased energy demand, in addition to the financial crisis, were the renewal of the aircraft fleet and technological advances to reduce fuel-related operating costs.

The two energy sources used by rail transport are electricity and diesel. In 2016, electricity represented 73.3 % of energy consumption (2.406 billion kWh) and diesel the remaining 26.7 %. Compared to the figure for 2015, these consumptions decreased by 2.2 % and 4.4 % respectively.

Definition of the indicator:

The indicator shows final energy consumption by domestic transport. The data only include energy consumption and exclude non-energy uses. This final energy consumption is provided for the following modes of transport: road, rail, maritime, air and pipeline transport (not significant).

Methodological notes:

- The sources of energy used in the transport sector, apart from unspecified and other minor consumptions, are as follows:
  - Oil products: LPG (liquefied petroleum gas), petrol and diesel for road transport; diesel for rail transport; diesel and fuel oil for maritime transport; kerosene for air transport; LPG and diesel for pipeline transport.
  - Gaseous fuels: for road and pipeline transport.
  - Renewables: biofuels for road transport.
  - Electricity: for rail transport.

Sources:

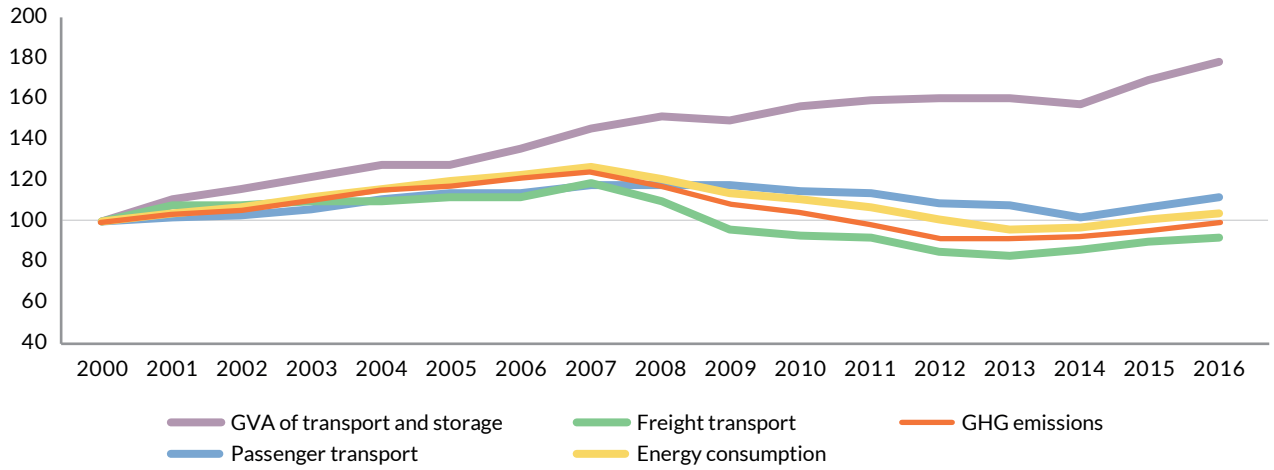
- Ministry for Ecological Transition. National Inventory of Greenhouse Gas Emissions. 1990–2016. 2018 edition. National Inventory Report.
- Ministry of Public Works. *Los transportes y las infraestructuras. Informe anual 2016* (Transport and infrastructure. 2016 annual report).
- Ministry of Public Works, 2016 Statistical Yearbook. Chapter 16. Pipeline transport.

Recommended websites:

- https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/
- https://www.fomento.gob.es/MFOM.CP.Web/handlers/pdfhandler.ashx?idpub=BTW033
- https://www.fomento.gob.es/NR/rdonlyres/B955CAEA-FFAD-4442-8AE9-E0D8A590A40E/147957/12Ferrocarril_16.pdf

Eco-efficiency of transport in terms of **GVA, demand, air emissions and final energy consumption**

Main transport variables: passenger transport, freight transport, energy consumption, GHG emissions and GVA (index: 2000=100)



Source: Ministry of Public Works, INE and MITECO

- ***Since 2000, GVA for transport has increased by 78.4 %. The other variables have continued the upward trend they began in 2014 and 2015, which marked the start of recovery from the financial crisis***
- ***With respect to 2015, domestic passenger demand in 2016 increased by 4.8 % and freight demand by 2 %, while energy consumption and GHG emissions increased by 3.5 % in both cases***

Total GVA in Spain increased across all sectors in 2016, recording a 3.6 % change as compared to the previous year. GVA at basic prices for transport increased by 5.22 %.

Energy consumption and transport demand showed similar trends, although it was greater for freight than for passengers. In general, increases in demand lead to increases in energy consumption. Thus, a change in trend took place after the financial crisis (during which there was a decline in the demand for transport) and, starting in 2013, an increase was seen in both demand and energy consumption.

Between 2007 and 2016, the demand for freight transport fell by 22.4 % and passenger transport by 4.8 %, leading to a 17.7 % drop in energy consumption over the same period. In recent years, however, this trend has reversed. In 2016, domestic passenger demand increased by 4.8 % and freight demand by 2 %, while energy consumption increased by 3.5 %.

The level of GHG emissions has gone hand-in-hand with energy consumption. However, since 2007 there has been a decrease in GHG emissions as compared to consumption, which could indicate an improvement in eco-efficiency.

Definition of the indicator:

The indicator shows different transport variables as a way to compare their behaviour with that of the sector's GVA, thus allowing for analysis of the trends and the correlation between them and revealing the relative efficiency of some aspects with respect to others (environmental, economic, etc.).

Methodological notes:

- See notes on previous indicators.
- GVA refers to 'transport and storage', and includes land and pipeline transport, maritime transport (and very limited domestic river transport in Spain), air transport, storage and other transport-related activities, and postal and courier activities. The contribution of postal and courier activities to GVA is included because disaggregated data were not available.

Source:

- INE. Annual Spanish National Accounts. Gross Value Added.
- *Los transportes y las infraestructuras. Informe anual 2016* (Transport and infrastructure. 2016 annual report). Ministry of Public Works.
- 2016 Statistical Yearbook. Chapter 16. Pipeline transport. Ministry of Public Works.
- Ministry for Ecological Transition. National Inventory of Greenhouse Gas Emissions. 1990–2016. 2018 edition. National Inventory Report.

Recommended websites:

- http://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736165950&menu=resultados&idp=1254735576581
- https://www.fomento.gob.es/MFOM.CP.Web/handlers/pdfhandler.ashx?idpub=BTW033
- https://www.fomento.gob.es/NR/rdonlyres/B52C9B71-E5F3-4291-9840-4E8E221178D1/145400/16TranspTuberia_16.pdf
- https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/


EXCEPTO AUTORIZADOS
20
VIA PECUARIA
CONSERVALA
CORREDOR EL PARDO-MONTEJO DE LA SIERRA
Vereda de las Tapias de Viñuelas y de El Pardo
Enlace Camino de Madrid a Santiago
1,7 Km

2.17 URBAN ENVIRONMENT AND HOUSEHOLDS

Currently, over 50 % of the world's population lives in urban areas, and this percentage is expected to continue to grow. The study titled Public Spaces for All carried out by Eurostat has quantified that 40.2 % of the EU population lives in large towns and cities, 32 % in 'intermediate' areas, such as the suburbs or small towns, and 27.8 % in rural areas. In short, more than 70 % of the EU population lives in urban areas. Spain is one of the most urban countries in the EU; it is estimated that 79 % of the population lives in large towns or cities, raising the need for serious reflection on the quality of life in these spaces.

It is essential to create more sustainable scenarios for cities in order to resolve the environmental, social and economic issues that affect citizens' quality of life. To this effect, Europe 2020 addresses sustainability in cities as a core issue and forecasts that at least 50 % of European Regional Development Fund (ERDF) resources will be invested in urban areas; this share could even increase as the period progresses. Furthermore, the European Commission has created a range of initiatives promoting policy integration between European and local levels, such as the European Green Capital Award and the European Covenant of Mayors, through which various towns and cities cooperate with the EU, establishing an urban environment strategy complementing the various directives on urban mobility, air quality, noise pollution and urban waste water, among others.

The European Environment Agency (EEA) regularly assesses Europe's urban environment with respect to trends in land use, consumption and environmental quality. Its aim is to place the urban environment in the broader context of improving quality of life in Europe's towns and cities, which brings in socioeconomic and cultural dimensions. The EEA creates Europe-wide urban databases such as the Urban Atlas, AirBase and the Noise Observation and Information Service for Europe (NOISE). To improve the quality of the data obtained, these databases are listed together with those of other European organisations under the Integrated Urban Monitoring in Europe (IUME) web platform.

The EEA has shifted its focus from the analysis of single urban components (such as land use and air quality) to a broader concept: urban metabolism. This concept makes

it possible to describe the environmental impact of urban patterns and the processes of urban development.

Urban traffic, caused by the excessive use of motor vehicles, has negative effects on the environment and human health. In addition to its high energy consumption —in large part dependent on oil-based fuels— and the space it occupies, it generates huge volumes of air pollutants, contributing significantly to greenhouse gas emissions. It is in this area that sustainable urban mobility makes ever-increasing sense. The European Commission has established two objectives for urban mobility: to phase out diesel-powered cars in cities by 2050 and to transition to zero-emission urban transport in large metropolitan areas by 2030. Meanwhile, Car-Free Day, which began as an opportunity for towns and cities to express their concern about environmental issues, has been held since 2000. For one day, usually 22 September, local authorities show their urban centres in a different light, restricting the entry of cars and motorcycles and encouraging people to use other more sustainable means of transport.

According to a study carried out by Eurostat on household composition, over the last decade, the total number of households increased by 10.13 % in the EU-28 and by 11.23 % in Spain. The total number of households in the EU-28 rose from 201 million in 2007 to 221 million in 2017. The only EU-28 country that saw a drop in the number of households over 2007–2017 was Croatia, where the figure fell by 3.1 % per year.

Among EU households, 20 % comprised couples with children (23.1 % in Spain), 24.9 % couples without children (21.8 % in Spain), 4.3 % one adult with children (3.4 % in Spain) and 33.6 % one adult without children (25.9 % in Spain). Regarding EU households with children, 47 % had a single child (31 million), while 40 % had two children (26 million) and 13 % three children or more (8.5 million); of these households with children, 15 % were made up of single parents with at least one child. The highest proportion of households with three or more children was registered in Ireland (26 %), followed by Belgium and Finland (both 19 %), France (18 %) and the United Kingdom (17 %). At the opposite end of the scale, less than 10 % of households with children had at least three children in Bulgaria (5 %), Portugal (6 %), Spain and Italy (both 8 %).

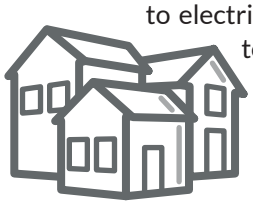
In 2017, the average household size in the EU-28 was 2.3 members. The largest average household size was recorded in Croatia (2.8 members), while the smallest were observed in Sweden (1.9 members), Germany and Denmark (both 2 members). The largest decrease since 2007 was registered in Lithuania, where average size dropped from 2.6 members in 2007 to 2.1 in 2017. In 2017, almost two thirds of all households in the EU-28 were composed of one or two people. Households comprising a single person recorded a rise between 2007 and 2017 (3.7 %). Households made up of two people made up 31.9 % of the total in 2017 (a 0.8 % increase since 2007). Larger households were less common, and their share decreased as the number of people per household rose: 15.6 % comprised three people and 13.1 % four people, while households with five people or more accounted for 5.8 % of the total in 2017. Over the last decade, the relative share of larger households fell, with the biggest reduction registered among households composed of four people (a 1.9 % decrease).

Urban density by autonomous community/city

- Spain ranks 16th in Europe by population density. The most densely populated European country is Malta, with 1 369.5 inhab/km², as opposed to Iceland, the least densely populated, with 3.3 inhab/km².
- In 2017, Spain's population reached 46 572 132 inhabitants (15 000 more than in 2016), accounting for a population density of 92.05 inhab/km² and a slight increase of 0.3 % compared to the previous year. Madrid and Catalonia were the autonomous communities that registered the greatest population growth.
- Of the total Spanish population, 79 % lived in municipalities with more than 10 000 inhabitants, constituting an urban density of 73.07 inhab/km². Ceuta and Melilla recorded the highest urban density (5 201.55 inhab/km²), followed by the autonomous communities of Madrid, the Canary Islands and the Basque Country.

Final energy consumption by households

- In European households, 65 % of final energy consumed was used for heating, while 14 % was used for domestic hot water and household appliances. Because Spain's climatic conditions are more favourable than those of other countries, energy demand for heating stood at just 44 %.
- Europe's downward trend with respect to electricity consumption is mainly due to more efficient household appliances and to consumption habits.



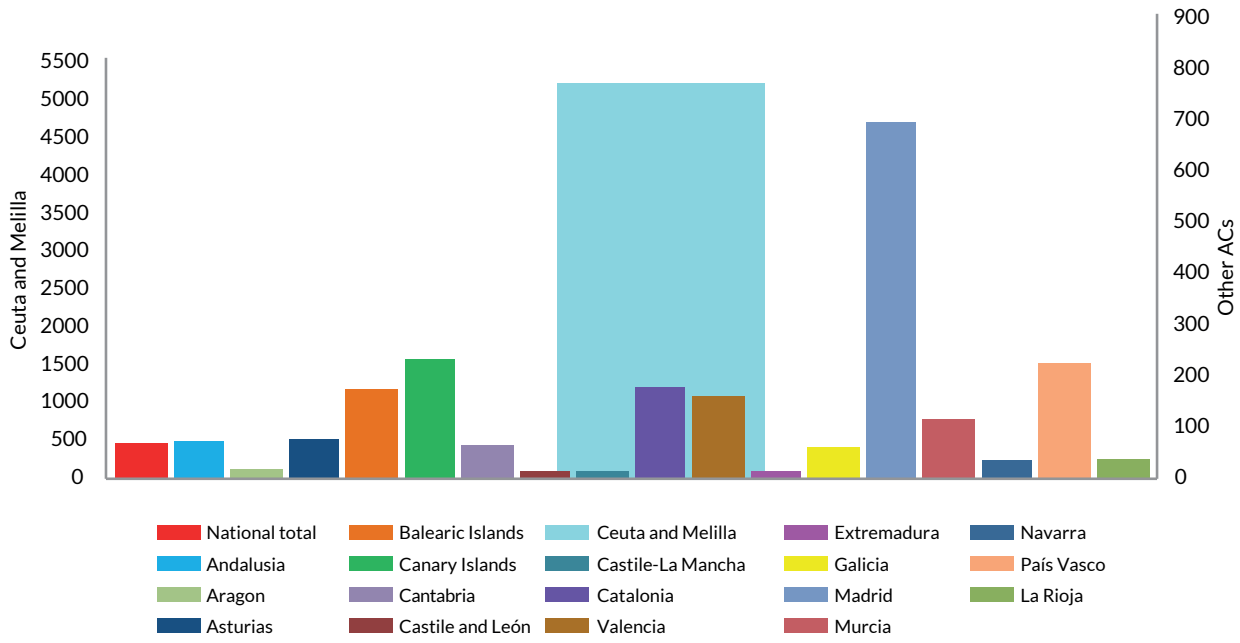
Urban public transport

- In 2017, public transport carried 2.924 billion passengers, representing year-on-year growth of 2.24 %. As regards means of transport, 41 % of passengers chose the metro, while 59 % opted for the bus.

- In 2017, city bus use rose by 1.82 % compared to 2016, and the autonomous communities that experienced the greatest increase in this modality were Valencia, Murcia and Aragon (6 %, 5.8 % and 4.7 %, respectively).
- In cities that have a metro system, this means of urban transport also experienced an increase in 2017, rising 4.76 %. All those cities saw year-on-year growth, with significant rises in Málaga and Palma de Mallorca (both 10 %) and Madrid (7.12 %).

Urban density **by autonomous community/city**

Urban density, 2017 (inhab/km²)



Source: INE

- ***Spain ranks 16th in Europe by population density. The most densely populated European country is Malta, with 1 369.5 inhab/km², as opposed to Iceland, the least densely populated, with 3.3 inhab/km²***
- ***In 2017, Spain's population reached 46 572 132 inhabitants (15 000 more than in 2016), accounting for a population density of 92.05 inhab/km² and a slight increase of 0.3 % compared to the previous year. Madrid and Catalonia were the autonomous communities that registered the greatest population growth***
- ***Of the total Spanish population, 79 % lived in municipalities with more than 10 000 inhabitants, constituting an urban density of 73.07 inhab/km². Ceuta and Melilla recorded the highest urban density (5201.55 inhab/km²), followed by the autonomous communities of Madrid, the Canary Islands and the Basque Country***

As at 1 January 2017, Spain's population totalled 46 572 132 inhabitants, giving it a population density of 92.05 inhab/km². This marked a slight rise of 0.3 % with respect to the previous year. Madrid and Catalonia were the autonomous communities that registered the greatest population growth, by 40 000 and 33 000 inhabitants, respectively, as compared to Castile and Leon and Valencia, the populations of which fell by 21 000 and 18 000 inhabitants respectively, followed by Castile-La Mancha and Galicia, which each lost 10 000 inhabitants.

Of Spain's total population, 79 % lives in cities with more than 10 000 inhabitants, constituting an urban density of 73.07 inhab/km². Once again, in 2017, the autonomous cities of Ceuta and Melilla recorded the highest urban density (5 201.55 inhab/km²) and year-on-year growth of 0.21 %. They were followed by the autonomous communities of Madrid with 765.97 inhab/km², the Canary Islands with 254.54 inhab/km² and the Basque

Country with 243.70 inhab/km^2. Meanwhile, the autonomous communities of Extremadura, Castile-La Mancha and Castile and Leon recorded the lowest urban densities, with 12.73 inhab/km^2, 14.39 inhab/km^2 and 14.46 inhab/km^2, respectively.

Over the period 2000–2017, Spain's urban density increased by 20 %, from 60.9 inhab/km^2 to 73.07 inhab/km^2. The indicator also increased in all Spain's autonomous communities except Asturias. The biggest increases in urban density were recorded in Madrid (153 inhab/km^2), the Canary Islands and the Balearic Islands (both 57 inhab/km^2) and Catalonia (33 inhab/km^2). The sharpest increase in urban density for the period under review occurred in the autonomous cities of Ceuta and Melilla, where it rose from 2 287.7 inhab/km^2 to 5 201.6 inhab/km^2 over 18 years.

Definition of the indicator:

This indicator shows data for the urban population density of Spain and its autonomous communities, a measurement referring to the ratio between the population living in towns and cities with more than 10 000 inhabitants and the land area of Spain and its autonomous communities.

Methodological notes:

This ratio is referred to as 'urban density' and is used to assess urban pressure on land.

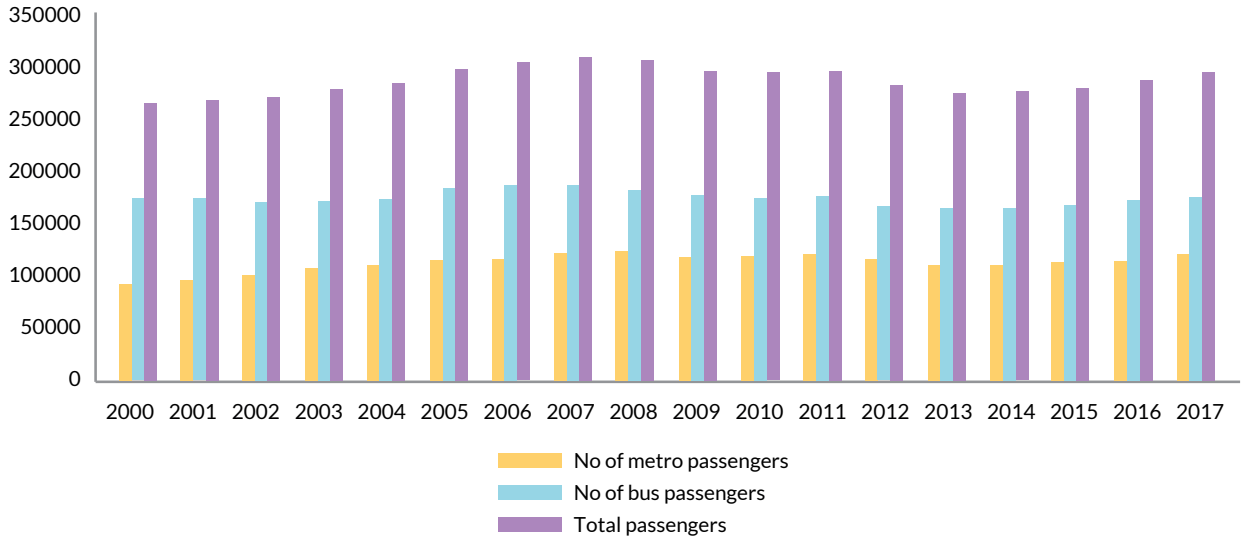
Sources:

Information gathered from the Eurostat website:

- http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tps00003&plugin=1
- http://www.ine.es/dynt3/inebase/index.htm?padre=523
- http://www.ine.es/inebmenu/mnu_entornofis.htm

Urban public transport

Urban transport, 2000–2017 (thousands of passengers)



Source: INE

- *In 2017, public transport carried 2.924 billion passengers, with year-on-year growth of 2.24 %. As regards means of transport, 41 % of passengers chose the metro, while 59 % opted for the bus*
- *In 2017, city bus use rose by 1.82 % compared to 2016, and the autonomous communities that experienced the greatest increase in this modality were Valencia, Murcia and Aragon (6 %, 5.8 % and 4.7 %, respectively)*
- *In cities that have a metro system, this means of urban transport also experienced an increase in 2017, rising 4.76 %. All those cities saw year-on-year growth, with significant rises in Málaga and Palma de Mallorca (both 10 %) and Madrid (7.12 %)*

En 2017, a total of 4.744 billion passengers used public transport, which includes urban (metro and bus), inter-city and special and charter transport. Of the 2.924 billion who used urban transport, 58 % chose the bus, while 41 % opted for the metro. Year-on-year growth was evidenced by a 2.24 % increase in number of passengers compared to the previous year.

In 2017, city bus use rose by 1.82 % with respect to 2016. This increase was experienced by all Spain's autonomous communities except Castile-La Mancha and Asturias. The autonomous communities to record the largest rises in the number of passengers using city buses were Valencia (6 %), Murcia (5.8 %) and Aragon (4.7 %).

In cities that have a metro system (Barcelona, Bilbao, Madrid, Málaga, Palma de Mallorca, Seville and Valencia), this means of urban transport also experienced an increase in 2017 of 4.76 %, with significant rises in Málaga and Palma de Mallorca (both 10 %) and Madrid (7.12 %).

The trend for number of monthly passengers of both bus and metro systems has been very similar over the years. A rise in the number of passengers was observed in the first quarter, followed by a drop in April and then recovery over the next two months. The number of passengers then fell until August, picking up again only to decline once more in December. August constituted the month with the lowest use, coinciding with the peak holiday season.

Definition of the indicator:

The indicator shows data exclusively on urban passenger transport, meaning routes that run solely on urban or development land or that link various urban areas within the same municipality. Data on inter-city, special and charter transport are not included.

Methodological notes:

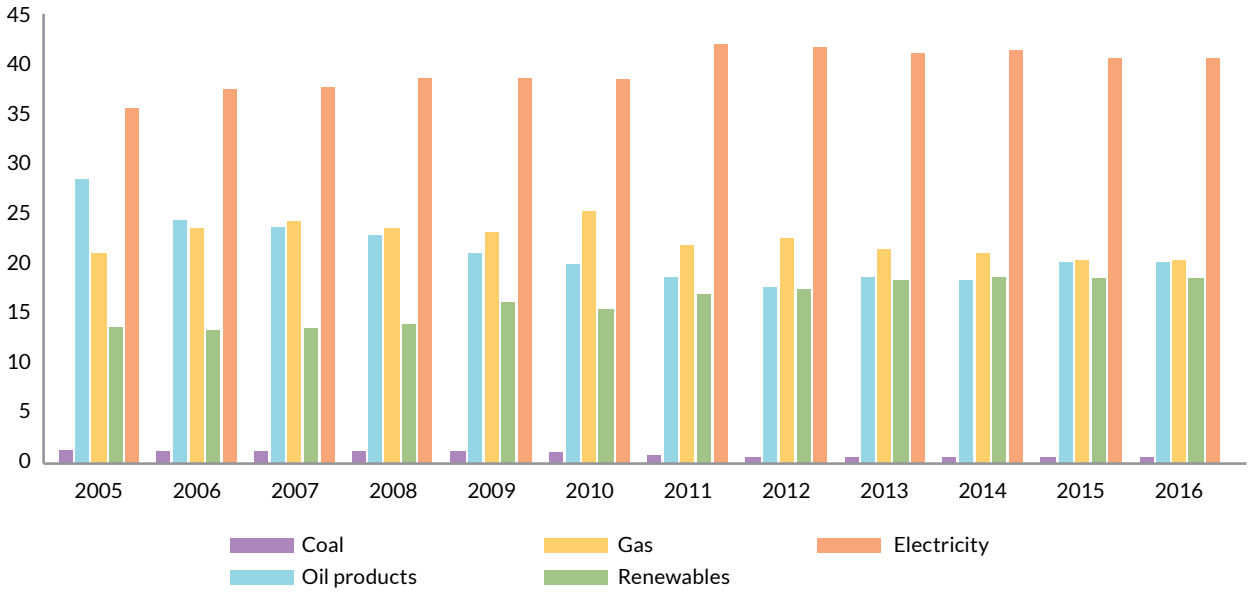
Metropolitan area is understood to be 'an urban geographical area with a high degree of interaction between its various urban centres in terms of journeys, day-to-day relationships, economic activity, etc.'. A single definition has not been established to demarcate Spain's metropolitan areas. Under OMM (Metropolitan Mobility Monitoring Centre) criteria, metropolitan areas coincide with the area within which each Public Transport Authority operates.

Sources:

INE, 2018. Passenger Transport Statistics. At INEbase/Services/Transport/Transport of passengers statistic

Final energy consumption by households

Structure of household energy demand, by energy source (% energy consumption)



Source: IDAE

- *In European households, 65 % of final energy consumed was used for heating, while 14 % was used for domestic hot water and household appliances. Because Spain's climatic conditions are more favourable than those of other countries, energy demand for heating stood at just 44 %*
- *Europe's downward trend with respect to electricity consumption is mainly due to more efficient household appliances and to consumption habits*

According to data published by Eurostat, energy consumption in European households —which mainly use it for heating (65 %) and domestic hot water (14 %)— accounts for 25.4 % of final energy consumption and 17.4 % of EU gross energy consumption. Final energy consumed comes primarily from natural gas (37.1 %) and electricity (24.5 %). Renewables accounted for 16 %, followed by oil products (11.7 %). A small proportion of consumption still comes from coal (3.3 %).

Within Europe, there are significant differences among countries with respect to use of the different energy sources. Gas is widely consumed in the Netherlands (89.7 %), the United Kingdom (79.9 %), Italy (65.5 %) and Spain (51.4 %). Electricity predominates in Malta (79 %), Bulgaria (57.4 %), Greece (52 %) and Croatia (46.7 %). Portugal and Ireland mainly use petroleum products (44.4 % and 43.3 %, respectively), while Slovenia uses a high proportion of renewable energy (41.9 %). Lastly, in Spain, consumption of petroleum products stands at 23.7 %, while electricity use constitutes 15.5 %.

The report *La Energía en España 2016* (Energy in Spain 2016) indicates that final energy consumption during 2016 amounted to 85 874 kilotonnes of oil equivalent (ktoe) —1.5 % higher than the previous year— including

non-energy uses such as asphalt production. This increase was mainly attributable to economic growth, following a period of sharp decline, and to a slight rise due to climatic conditions, characterised by a colder winter than in 2015.

Energy consumption by Spanish households increased by 1.1 % —excluding non-energy uses— amounting to 18.5 % of total final energy consumption. This rise is explained solely by the contribution of oil product consumption, which rose by 10 %. Use of other energy sources dropped: coal by 3.5 %, gas by 2.5 %, electricity by 1 % and renewables by 0.1 %.

As regards energy sources used in the residential sector, in 2015, final energy consumed in Spain came mainly from electricity (40.5 %), followed by natural gas (20.3 %), oil products (20.2 %) and renewables (18.5 %). In the case of renewable energy, biomass and wind energy were the most widely consumed, while liquefied gas and diesel were the most heavily used oil products.

According to usage, in 2015, 44.1 % of final energy consumed in households was used for heating, followed by household appliances (25 %) and domestic hot water (17.7 %). The cold temperatures recorded in 2015 explain the increase in the demand for heating and, therefore, oil products.

Definition of the indicator:

The indicator shows final energy consumption corresponding to total energy consumed by the residential sector in both Spain and Europe.

Methodological notes:

The difference between energy consumption by the residential sector and household energy consumption is that the former includes energy consumption in second homes and the common areas of housing buildings and developments, while the latter refers solely to main residences.

Sources:

- http://www.minetad.gob.es/energia/balances/Balances/LibrosEnergia/energia-espana-2016.pdf
- http://www.minetur.gob.es/energia/es-ES/Paginas/index.aspx
- http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database
- http://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_consumption_in_households

2.18 NATURAL AND MAN-MADE DISASTERS

Natural disasters lead to thousands of deaths as well as major economic losses worldwide. According to the United Nations, in the last 10 years these natural phenomena have caused 0.7 million deaths and have cost approximately USD 1.7 billion.

In addition, extreme weather events, primarily due to torrential rain, freshets, high winds and prolonged droughts, have increased considerably in both frequency and severity in recent times. Approximately 70 % of natural disasters are now climate-related, twice the proportion of 20 years ago.

Against this background, the Fifth Session of the Global Platform for Disaster Risk Reduction was held in May 2017 in Cancún, Mexico. This platform, created in 2006 (Resolution 61/198 of the General Assembly of the United Nations) is recognised as the main forum at the global level for strategic advice, coordination, partnership development and the review of progress in the implementation of international instruments on disaster risk reduction, particularly the Sendai Framework for Disaster Risk Reduction (2015–2030).

The session generated exchanges on key issues and concrete guidance for taking further action, based on the Sendai Framework's Four Priorities for Action: 1) Understanding disaster risk; 2) Strengthening disaster risk governance to manage disaster risk; 3) Investing in disaster risk reduction for resilience; and 4) Enhancing disaster preparedness for effective response and to 'build back better' in recovery, rehabilitation and reconstruction.

According to the UN report on the International Strategy for Disaster Reduction, in Spain, 8 million people are vulnerable to drought, 49 000 to earthquakes and 28 000 to flooding. In Spain, 697 people died over 1997–2016 due to floods and the effects of heat waves.

To mitigate the effects of drought, since 2001, the Ministry for Ecological Transition has implemented drought contingency plans and an urban water supply emergency plan, the aims of which are to minimise the environmental, economic and social impact of drought situations; this involves ensuring the availability of water for the population and for economic activities and lessening drought impacts on the ecological status of water bodies.

In 2016, the majority of the flood risk management plans were approved. Their objective is to achieve coordinated action between public authorities and society to alleviate the consequences of flood events.

Fatalities due to natural disasters

- Over 1995–2017, flooding caused the highest number of fatalities (342 people); in 1996 alone, there were 110 victims at a flash flood at a campsite in Biescas, and in 1997, a freshet in Badajoz caused 40 deaths.

Drought

- In 2017, Spain's mean annual precipitation was 474.6 mm, classifying it as a very dry year.
- 2017 was the second-driest year since 1965, behind 2005.

Forest fires

- In 2017, there were 13 793 forest fires, affecting 178 233 hectares of Spain's forest area. Once again that year, the north-west region was the hardest hit.
- More than a third of the area affected by forest fires in 2017 was wooded.

Road and rail accidents causing possible environmental damage

- Regarding environmental damage produced between 1997 and 2017 by road and rail accidents, 75.5 % affected soil, 13.1 % hydrology and 11.4 % the atmosphere.
- In 2017, there were 13 accidents (12 road, 1 rail). These figures represent a 42 % decrease compared to the previous year.

Industrial accidents releasing dangerous substances

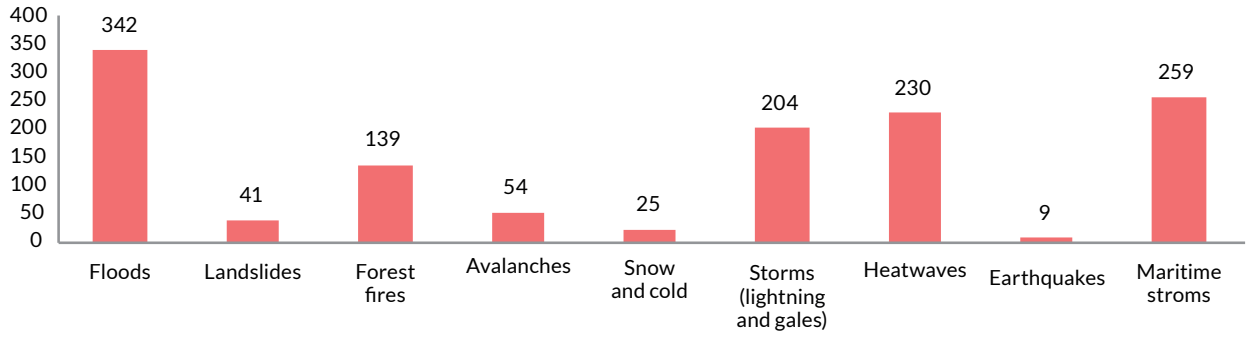
- Over 1987–2017, there were 74 industrial accidents, 32.4 % of which took place in Catalonia.
- In 2017, a total of 14 accidents occurred in industrial activities covered by the Seveso Directive, 5 more than in the previous year.

Extraordinary risks: compensation for floods and storms

- Between 1971 and 2016, floods and storms constituted the most prevalent extraordinary risks in Spain, accounting for 62 % and 19 %, respectively, of total compensation.
- In 2016, settled claims for flood and storm damage amounted to EUR 182.6 and EUR 2.7 million, respectively.

Fatalities due to **natural disasters**

Number of fatalities in Spain due to natural disasters. 1995–2017



Source: DGPCE

- ***Over 1995–2017, flooding caused the highest number of fatalities (342 people); in 1996 alone, there were 110 victims at a flash flood at a campsite in Biescas, and in 1997, a freshet in Badajoz caused 40 deaths***

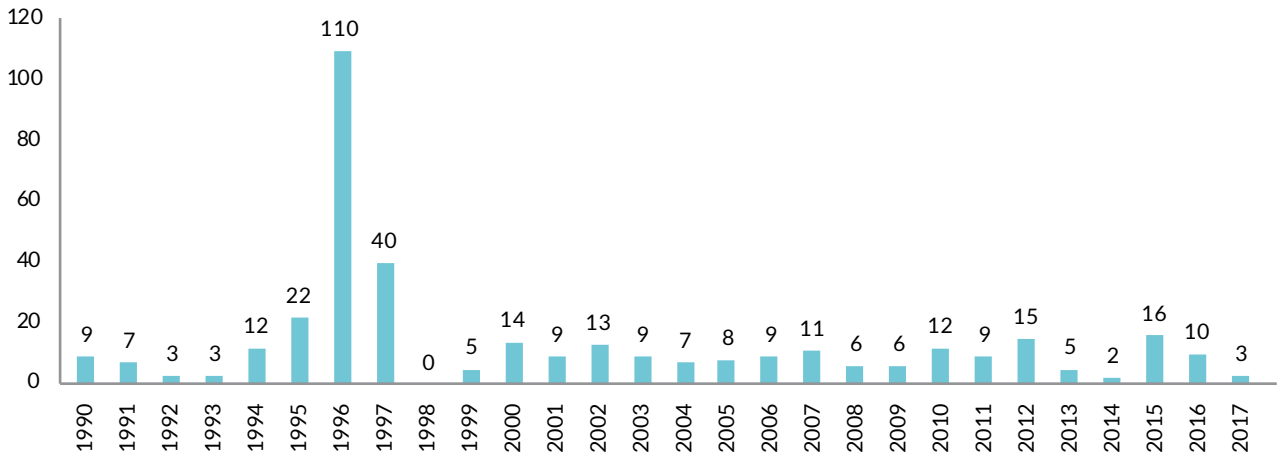
Spain is not especially afflicted by natural disasters, although fatalities are reported every year. According to data from the DGPCE (Directorate-General for Civil Protection and Emergencies), from 1995 to 2017, there were a total of 1 303 deaths. During this period, floods were the natural disaster resulting in the most fatalities (26.2 %), followed by deaths on land due to maritime storms (19.9 %), heat waves (17.7 %) and terrestrial storms (15.7 %).

In the last 28 years (1990–2017), flooding caused the highest number of fatalities (372 people); in 1996 alone, there were 110 victims at a flash flood at a campsite in Biescas, and in 1997, a freshet in Badajoz caused 40 deaths. Maritime storms, with an average of 10 fatalities per year, also took a high toll. Heat waves resulted in 230 deaths, the most prominent years being 2003 and 2015, with 60 and 33 fatalities, respectively.

In 2017, there were 35 deaths due to natural disasters, 5 more than the previous year. The natural disasters that produced the most fatalities were heat waves, accounting for 60 % of deaths (21 people), forest fires (17.1 %; 6 people), and storms, lightning and gales (11.4 %; 4 people).

Floods and spates are the types of natural disaster that cause the most fatalities in Spain. By autonomous community, between 1999 and 2017, Aragon had the highest number of fatalities (24.7 %), followed by Andalusia (23.9 %) and Catalonia (15.6 %). At the other end of the scale, the autonomous communities of Cantabria and Rioja and the autonomous cities of Ceuta and Melilla registered the fewest fatalities. Of the 3 deaths in 2017 resulting from floods, 2 occurred in Catalonia, while 1 took place in Valencia.

Fatalities due to floods and spates in Spain (1990–2017)



Source: DGPCE

Definition of the indicator:

The indicator shows the number of fatalities resulting from the various types of natural disaster that occurred in Spain.

Methodological notes:

- Particularisations on certain natural phenomena:
  - The landslides that caused fatalities in Spain were closely associated with heavy rain, which also produced flooding and spates. The large majority of landslides occurred at the same time as rain or a short time after heavy rainfall.
  - Fatalities due to maritime storms refer to victims on land due to falls, sea surges, etc. The figures do not include victims at sea (sinkings, falls, etc.) due to these phenomena.
  - Volcanic eruptions and droughts have been excluded from the analysis, since although these are phenomena that can occur in Spain, with droughts arising recurrently, they have not caused any deaths in the period under consideration. The Canary Islands are the only part of Spain with active volcanoes and, therefore, the only area in which risk associated with this phenomenon exists; the last eruptions were that of Chinyero (a lateral volcano on the Pico del Teide) on Tenerife in 1909; those of Nambroque in 1949 and Teneguía in 1971, both on the island of La Palma; and that of the underwater eruption next to the island of El Hierro in October 2011.
- Data considerations:
  - There are no data for fatalities on land due to maritime storms in 2005 or 2006.
  - The 2015 data on floods, landslides and heat waves were updated (cross-checked against data provided by the Ministry of Health, Social Services and Equality).
- The International Strategy for Disaster Reduction (ISDR) drawn up by the United Nations Office for Disaster Risk Reduction (UNISDR) evaluates natural disaster legislation and prevention and threat levels in more than 150 countries. This report highlights that the main natural catastrophes threatening Spain are droughts, earthquakes and floods and ranks Spain as the fifth country most at risk of drought.

Sources:

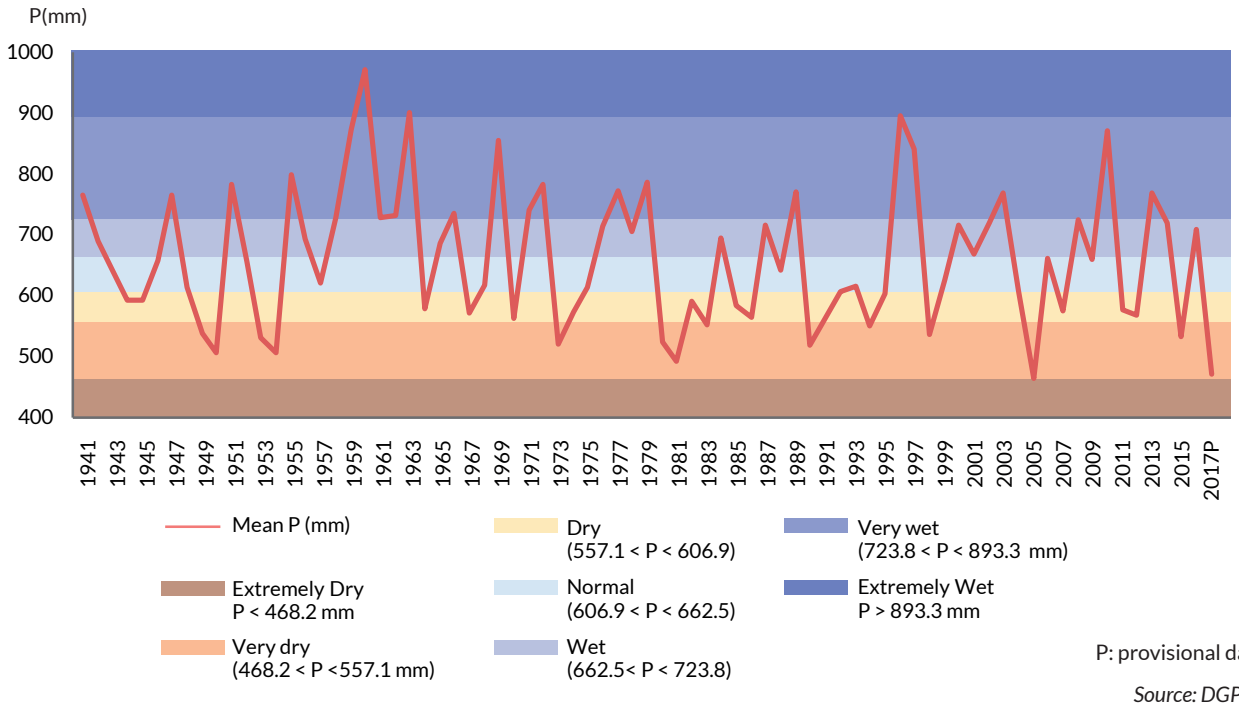
Data provided by the Subdirectorate-General for Prevention, Planning and Emergencies. Directorate-General for Civil Protection and Emergencies. Ministry of the Interior.

Recommended websites:

- http://www.proteccioncivil.es/web/dgpcye/riesgos
- http://ec.europa.eu/research/environment/index_en.cfm?pg=hazards

Drought

Mean annual precipitation (mm)



P: provisional data

Source: DGPCE

- ***In 2017, Spain's mean annual precipitation was 474.6 mm, classifying it as a very dry year***
- ***2017 was the second-driest year since 1965, behind 2005***

Drought can be defined as a generally prolonged temporary anomaly in a specific area characterised by precipitation below that area's normal rainfall over a certain period of time. The initial cause of any drought is a scarcity of precipitation (meteorological drought), which results in there being insufficient water resources (hydrological drought) to meet existing demand. The EU differentiates between 'drought' as a temporary drop in water availability due to lack of precipitation and 'water scarcity', which arises when demand for water exceeds the water resources exploitable under sustainable conditions.

According to provisional data provided by Spain's AEMET (State Meteorological Agency), in 2017, mean annual precipitation stood at 474.6 mm, marking a 33 % drop with respect to the previous year.

Each year can be classified according to mean precipitation and the percentiles established by the AEMET for the 1981–2010 reference period:

Percentage of years, classified by mean precipitation (1941–2017)

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	16.9	18.2	16.9	16.9	28.6	1.3

Source: AEMET

According to the *Resumen Anual Climatológico* (Annual Climatological Summary) published by the AEMET, 2017 was a very dry year throughout all of Spain. Mean precipitation in Spain for that year was 27 % below the mean annual value of the 1981–2010 reference period. As per available data, 2017 was the second-driest year since 1965, behind 2005, in which precipitation was 468 mm.

With respect to regional differences, 2017 was extremely dry throughout extensive areas of the peninsula's north-west quadrant and in northern Extremadura; much of the mainland and the Canary Islands were classified as dry to very dry, and only the south-east of the peninsula and the island of Mallorca were classified as wet or very wet.

Definition of the indicator:

The indicator compares mean annual precipitation between 1941 and 2017, with the mean situation established over a reference period of 30 years (1981–2010), resulting in a generic classification of dry and wet conditions based on precipitation.

Source:

Data provided by the Civil Protection Service and the AEMET. Ministry for Ecological Transition.

Methodological notes:

The average precipitation figure for 2017 (474.6 mm) is provisional. For the AEMET, the 1981–2010 reference period (30 years) is representative of precipitation in Spain and is used to establish the following ranges and create a generic classification within which to place each year according to its mean annual precipitation:

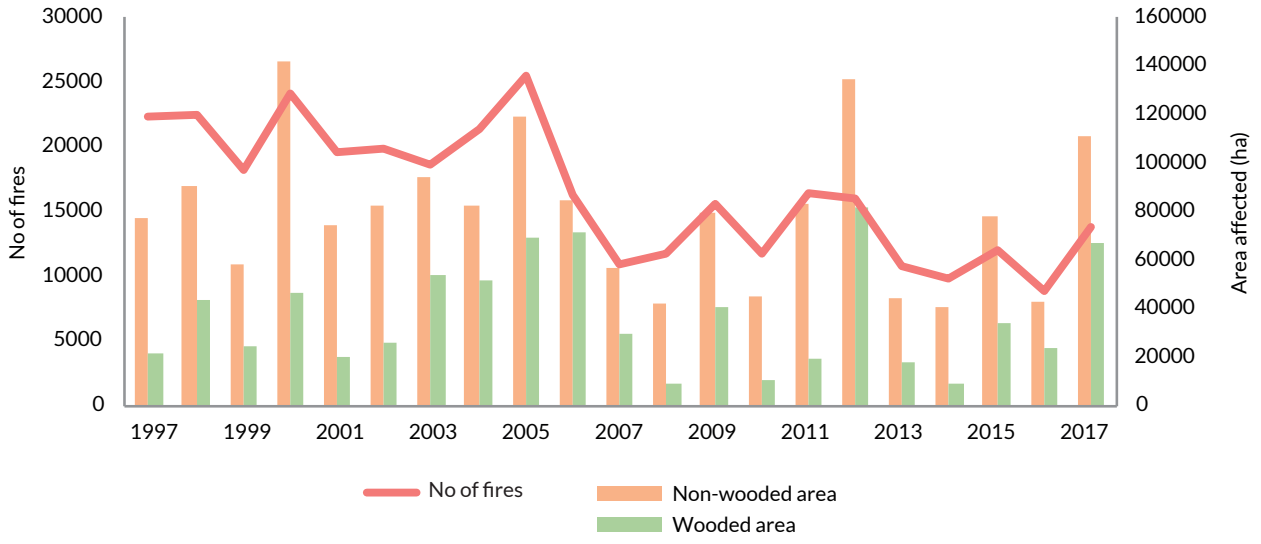
- Extremely dry (<468.2): precipitation is below the minimum amount recorded in the reference period.
- Very dry (>=468.2 and <557.1): precipitation is greater than or equal to the minimum amount recorded in the reference period and less than the reference period's 20 percentile.
- Dry (>=557.1 and <606.9): precipitation is greater than or equal to the 20 percentile and less than the 40 percentile.
- Normal (>=606.9 and <662.5): precipitation is greater than or equal to the 40 percentile and less than the 60 percentile.
- Wet (>=662.5 and <723.8): precipitation is greater than or equal to the 60 percentile and less than the 80 percentile (664 mm< P ≤747 mm).
- Very wet (>=723.8 and <893.3): precipitation is greater than or equal to the 80 percentile and less than the maximum amount recorded in the reference period.
- Extremely wet (>=893.3): precipitation is greater than or equal to the maximum amount recorded in the reference period.

Recommended websites:

- www.aemet.es
- http://www.aemet.es/documentos/es/serviciosclimaticos/vigilancia_clima/resumenes_climat/anuales/res_anual_clim_2017.pdf
- http://ec.europa.eu/environment/pubs/pdf/factsheets/water_scarcity/es.pdf

Forest fires

Forest area affected by fire and number of fires, 1997–2017



Source: MITECO

- ***In 2017, there were 13 793 forest fires, affecting 178 233 hectares of Spain's forest area. Once again that year, the north-west region was the hardest hit***
- ***More than a third of the area affected by forest fires in 2017 was wooded***

In 2017, there were 13 793 forest fires, 63 % of which were classified as outbreaks (less than one hectare was affected) and 37 % as full forest fires. The number of forest fires rose by 10 % with respect to the average of the last 10 years, making 2017 the year with the decade's third-highest number of forest fires. With respect to the previous year, the number of forest fires increased by 56 % (outbreaks rose by 34 % and full forest fires by 117 %).

In 2017, the total forest area affected comprised 178 233 hectares, 171 % more than the previous year. Over a third of the area affected by forest fires in 2017 was wooded.

During 2017, there were 56 large forest fires (with an affected surface area exceeding 500 hectares) in Spain, many of which were in the summer. Overall, 73 % of the large fires occurred in the north-west of the peninsula.

The north-west of Spain (Galicia, Asturias, Cantabria, the Basque Country and the provinces of Leon and Zamora) suffered the most forest fires, as regards both the number of fires (51.7 %) and the affected surface area (73.9 %). It was followed by Spain's inland autonomous communities, the Mediterranean region and, lastly, the Canary Islands, with affected surface areas amounting to 14.3 %, 11 % and 1 %, respectively.

During 2017, several autonomous communities, among them Galicia, Asturias, Cantabria and Andalusia, were impacted by large forest fires that devastated considerable amounts of woodland. The fire that affected the emblematic Doñana National Park in Andalusia was particular noteworthy.

In all autonomous communities except for the Canary Islands, Extremadura and the Balearic Islands, the number of forest fires increased with respect to 2016, although in many cases the affected surface area was smaller.

Definition of the indicator:

The indicator shows the number of forest fires occurring during the year (for the period from 1 January to 31 December). The number of forest fires includes fires affecting surface areas greater than 1 ha and outbreaks, consisting of fires that affect a surface area less than or equal to 1 ha.

Methodological notes:

Given the heterogeneity of Spain's territory, conditioned by the weather, topography, vegetation and socioeconomic factors, forest fires are analysed by four geographical regions that share broadly similar characteristics:

- North-west: the autonomous communities of Galicia, Asturias, Cantabria and the Basque Country and the provinces of Leon and Zamora.
- Mediterranean: the autonomous communities on the Mediterranean coast, including their inland provinces.
- Canary Islands: the Canary Islands archipelago.
- Inland autonomous communities: the provinces, except for Leon and Zamora, of the remaining non-coastal communities.

Sources:

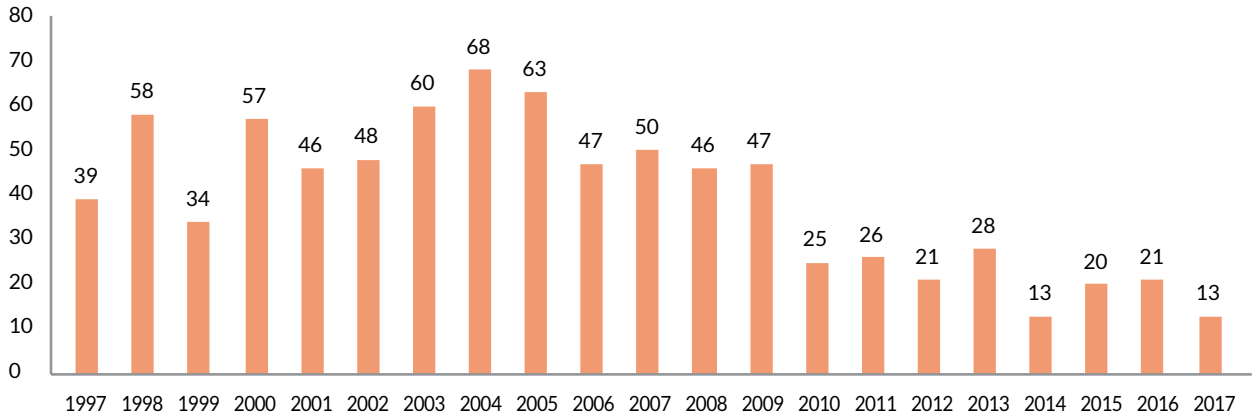
Los incendios forestales en España, 1 de enero–31 de diciembre de 2017. Avance informativo' (Forest Fires in Spain, 1 January–31 December 2017. Advance estimate). Ministry for Ecological Transition.

Recommended websites:

- http://www.miteco.gob.es/es/desarrollo-rural/estadisticas/iiff_2017_def_tcm30-446071.pdf
- http://www.miteco.gob.es/es/desarrollo-rural/estadisticas/Incendios_default.aspx

Road and rail accidents **causing possible environmental damage**

Accidents causing possible environmental damage during the transport of dangerous goods by road and rail



Source: DGPCE

- ***Regarding environmental damage produced between 1997 and 2017 by road and rail accidents, 75.5 % affected soil, 13.1 % hydrology and 11.4 % the atmosphere***
- ***In 2017, there were 13 accidents (12 road, 1 rail). These figures represent a 42 % decrease compared to the previous year***

Between 1997 and 2017, there were a total of 830 road and rail accidents causing possible environmental damage. Of them, 94.7 % occurred on Spain's roads (786 accidents), while only 5.3 % occurred on the country's railways (44 accidents). From 2010 onwards, the number of accidents dropped significantly; that year in particular saw a 46.8 % decrease with respect to the previous year.

In 2017, there were 13 accidents (12 road, 1 rail). These figures are well below those of the previous year —in which there were a total of 21 accidents, all on the roads— accounting for a 42 % drop.

The possible environmental damage caused by an accident involving a vehicle or train carrying dangerous goods varies according to the resource affected: the atmosphere, hydrology or soil. Between 1997 and 2017, there were 947 incidents, 75.5 % of which affected soil, 13.1 % hydrology and 11.4 % the atmosphere. It is necessary to emphasise that the number of incidents is greater than the number of accidents, as a single accident usually affects various environmental media.

Definition of the indicator:

The indicator shows the number of accidents by means of transport (road and rail) causing possible environmental damage.

Methodological notes:

- When categorising road and rail accidents, dangerous goods are considered those substances that, in the case of an accident during transport, may represent a hazard to the population, property or the environment. Possible environmental damage is considered to occur when the existence of a leak or spillage (on land, in water or into the air) with a potentially pollutant effect is reported.
- The total number of incidents causing possible environmental damage may not be the same as the total number of accidents, as a single accident may affect several environmental media; for example, a spill can impact both soil and water.

Sources:

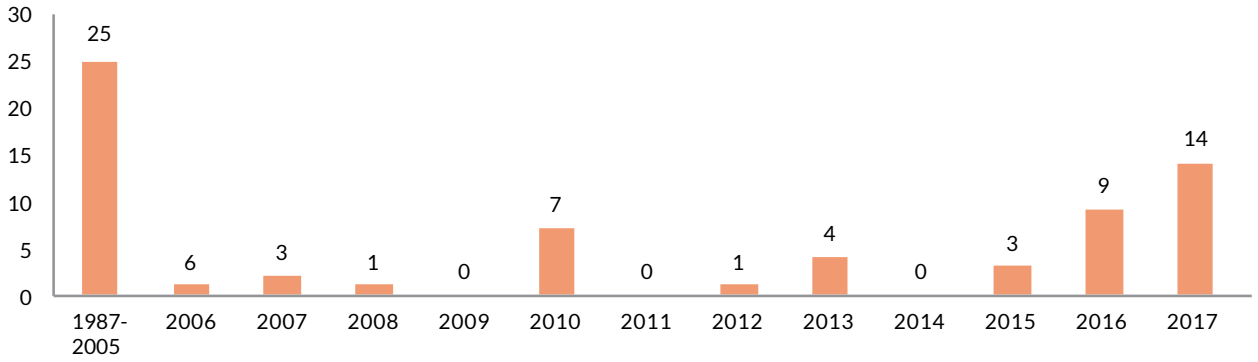
Data provided by the Directorate-General for Civil Protection and Emergencies. Ministry of the Interior.

Recommended websites:

- http://www.proteccioncivil.es/riesgos/transportes/accidentes

Industrial accidents **releasing dangerous substances**

Number of accidents in industrial activities covered by the Seveso Directive



Source: DGPCE

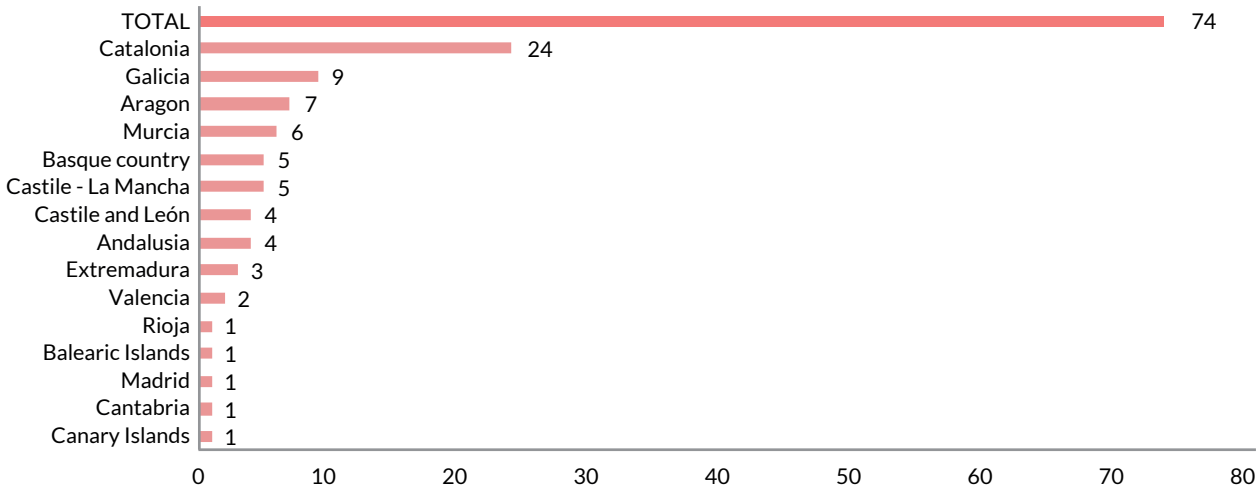
- ***Over 1987–2017, there were 74 industrial accidents, 32.4 % of which took place in Catalonia***
- ***In 2017, a total of 14 accidents occurred in industrial activities covered by the Seveso Directive, 5 more than in the previous year***

In response to a string of accidents and disasters throughout Europe, the European Union created a regulatory framework for the control and prevention of industrial accidents and disasters. Known as the Seveso Directive due to the accident that took place in 1976 in the Italian town of the same name, Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances lays down the regulatory provisions, which are transposed into Spanish law by Royal Decree 840/2015 of 21 September 2015 approving measures to control major-accident hazards involving dangerous substances .

Between 1987 and 2017, there were a total of 74 industrial accidents, 32.4 % of which took place in Catalonia. To this effect, it should be noted that according to the INE's DIRCE (Central Companies Directory), which analyses the structure and dynamics of Spain's business fabric, Catalonia was the autonomous community with the highest proportion of active enterprises as at 1 January 2017, with 18.6 % of the total, followed by Madrid (16.0 %) and Andalusia (15.3 %). Referring only to the industrial sector, Catalonia was also the autonomous community with the most industrial companies (18.3 % of the total), followed in this case by Andalusia in second place with 13.9 % of the total. The fact that Catalonia has greater production capacity and a high share of active undertakings is one of the possible reasons for the number of accidents.

In 2017, there were 14 accidents in industrial activities covered by the Seveso Directive, producing a 55.6 % rise compared to 2016. The autonomous communities that recorded the highest number of accidents in 2017 were Catalonia and Murcia, with 4 accidents each, followed by Aragon and Extremadura with 2 each.

Number of accidents in industrial activities covered by the Seveso Directive, 1987–2017



Source: DGPCE

Definition of the indicator:

The indicator shows the number of industrial accidents that occurred in activities covered by the Seveso Directive.

Methodological notes:

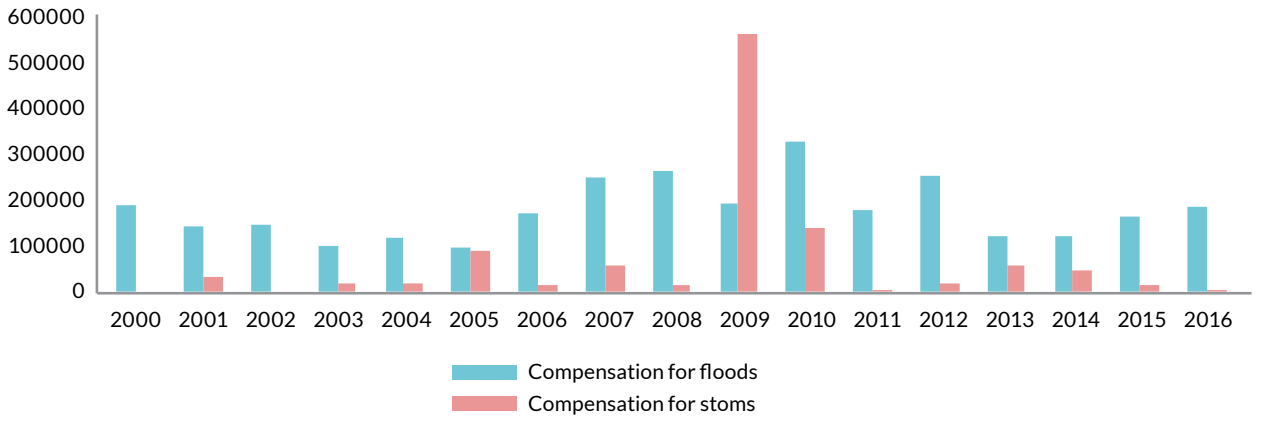
- The Seveso Directive is implemented by means of successive European directives that abrogate and replace the preceding ones. The first of them was Seveso I (Directive 82/501/EEC), the second, Seveso II (Directive (96/82/EC) and the third, Seveso III (Directive 2012/18/EU).
- Seveso III is related to the control of major-accident hazards involving dangerous substances. Its main developments include adaptation to changes to the system of classification of substances and mixtures (Regulation (EC) No 1272/2008 —the CLP Regulation— on classification, labelling and packaging of substances and mixtures) and adaptation to the requirements of the Aarhus Convention.
- In addition, it established new inspection requirements (the obligation to have a programme of annual on-site inspections for establishments at greatest risk of accidents, with inspections every three years for all others) and updated the activities and substances that would be affected by the new regulation, leading to a rise in the number of businesses subject to these obligations. This Directive was partially transposed into Spanish law by Royal Decree 840/2015 of 21 September 2015, which approved measures to control major-accident hazards involving dangerous substances.

Sources:

- Data provided by the Subdirectorate-General for Planning, Operations and Emergencies. Directorate-General for Civil Protection and Emergencies. Ministry of the Interior. http://www.proteccioncivil.es/riesgos

Extraordinary risks: **compensation for floods and storms**

Compensation for floods and storms (thousand €)
2000–2016 dataset.



Source: CCS

- ***Between 1971 and 2016, floods and storms constituted the most prevalent extraordinary risks in Spain, accounting for 62 % and 19 %, respectively, of total compensation***
- ***In 2016, settled claims for flood and storm damage amounted to EUR 182.6 and EUR 2.7 million, respectively***

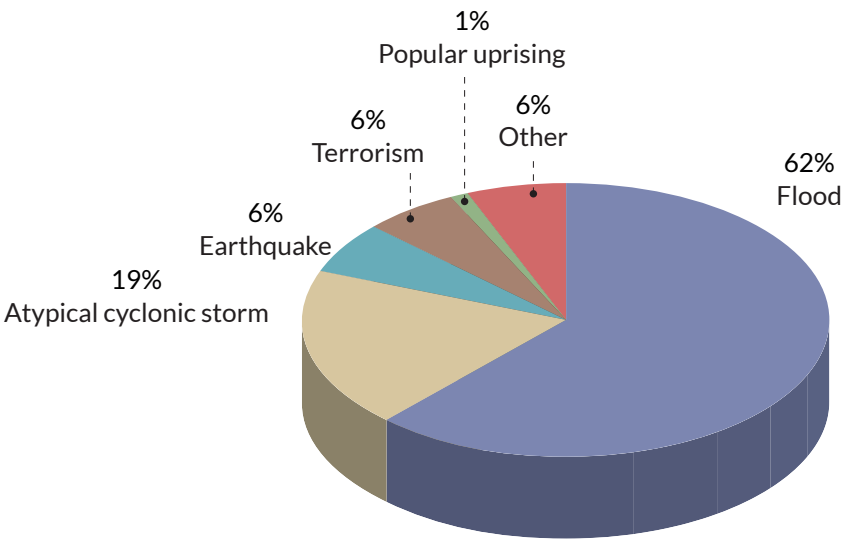
In Spain, the CCS (Insurance Compensation Consortium) —a government agency reporting to the Ministry of Economy and Enterprise— covers extraordinary risks, defined as those that originate from extraordinary and improbable events and that, because of their magnitude, cause a significant amount of damage.

Between 1971 and 2016, floods and storms constituted the most prevalent extraordinary risks in Spain. The CCS has settled a total of 1.3 million claims, with total compensation amounting to EUR 9.393 billion. Of those claims, floods (583 694 claims) and storms (627 666 claims) accounted for 92.3 % of the total number and 81.3 % of total compensation.

Between 1971 and 2016, the number of claims due to atypical cyclonic storms and floods amounted to 47.8 % and 44.6 %, respectively, of the total. Although the percentages of claims for both phenomena are similar, compensation for floods is much higher than that of storms, amounting to 62 % and 19.4 %, respectively, of total compensation.

In 2016, settled claims for flood damage amounted to EUR 182.58 million, and those of storms stood at EUR 2.69 million. With respect to the previous year, compensation for floods rose by 10 %, while that of storms fell by 81 %.

Number of accidents in industrial activities covered by the Seveso Directive, 1987–2017



Source: CCS

Definition of the indicator:

The indicator shows compensation for floods and storms paid by the CCS.

Methodological notes:

- The CCS is a state-owned company governed by the provisions of Royal Legislative Decree No 7/2004 of 29 October 2004 adopting the recast text of the statute of the CCS. It is responsible for compensating damage to people and property caused by natural phenomena or events arising from political or social unrest.
- Events included in the cover of extraordinary risks are characterised by an absolute lack of regularity as regards their occurrence (in terms of both frequency and intensity) and, therefore, by significant variability in their aftermath, which is highly likely to be compounded both temporally and spatially.
- It should be noted that the direct damage caused by rain, hail and snow covered by the CCS up to 1987 (and which is currently limited to damage produced by flooding) is included under the category 'Atypical cyclonic storm'. The category 'Others' in the chart illustrating the breakdown of compensation includes the 'fall of astral bodies and meteorites', 'riots', 'action by the Armed Forces' and 'various'.

Sources:

Extraordinary Risk Statistics, 2018. 1971–2016 dataset. CCS. Ministry of Economy and Enterprise.

Recommended websites:

- https://www.consorseguros.es/web/ambitos-de-actividad/seguros-de-riesgos-extraordinarios/mas-informacion/estadistica
- https://www.consorseguros.es/web/documents/10184/44193/Estadistica_Riesgos_Extraordinarios_1971_2014/14ca6778-2081-4060-a86d-728d9a17c522

3

Information by autonomous community: basic data

INFORMATION BY AUTONOMOUS COMMUNITY: BASIC DATA 03

This section follows the structure of previous years' reports and divides the information into three main blocks. Its scope changes from year to year in line with suggestions and proposals made by the European Environmental Agency's EIONET in Spain and, above all, with those made by the Regional Focal Points. The information is broken down into the following three blocks:

- Geographical, administrative and socioeconomic data.
- Environmental data on soil, natural environment, waste, water, air quality, electricity consumption and social participation in environmental protection.
- Complementary information, including environmental reports and publications and links to recommended websites on the environment in each autonomous community.

This section features a series of environmental indicators for each of Spain's autonomous communities, thereby fulfilling one of the Environmental Profile of Spain's key goals. It complements the analysis carried out in the preceding chapters that, whenever possible, include information on and references to the European Union and Spain's autonomous communities. However, as this has not been possible for all the indicators, the authors opted to add a specific section to the report to include relevant environmental and socioeconomic data on each autonomous community and so add greater depth to the information contained in this document.

The data on each autonomous community are presented in the form of fact sheets and are taken from both regional and central government sources, bodies and institutions.

The goal of this chapter is to provide information about the situation in each autonomous community in relation to the variables and indicators, thus creating a snapshot of each one. However, these data should not be used as a way of ranking or comparing autonomous communities. The reason for this is that, as stated previously, a large part of the information is supplied by the regional governments themselves, and both the characteristics 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. Similarly, the reference years for the data may vary depending on whether the source is central or regional government.

Each variable and indicator is linked to a source (MITECO, INE, REE, etc.) indicated at the end of each section. Only when the information was supplied by the Regional Focal Point has the source been specified in the variable itself.

Information related to the environment is also provided at the end of each autonomous community fact sheet. In this section, the Regional Focal Points have highlighted the environmental information they consider to be of most interest. It has been structured to offer three key types of information: references to environmental reports published by the regional governments, websites about environmental issues, and other noteworthy information that the various regional governments want to highlight. Compilation of these references has been made possible by the collaboration of the Spanish EIONET's Regional Focal Points, which have actively contributed to defining the contents and providing the information requested.

ANDALUSIA

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 2/2007 of 19 March 2007
Area (INE): 87 596 km²
Mean length of coastline: 2 138.4 km (20.8 % of the Spanish total)
Capital: Seville **Provinces:** 8 **Municipalities:** 778
Population (2017): 8 379 820 inhabitants
Population density (2017): 95.7 inhab/km²
Population change (%) 2000–2017: 14.2 / **2016–2017:** -0.1

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Andalusia	8.9	9.0	5.6	76.6
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Andalusia	6.0	11.6	5.9	67.2
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
12.8	27.8	31.5	28.9	25.5
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2014–2015 (%)
Andalusia	11 466	78.93	3.5
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
56.4	58.6	58.8	57.8	57.4
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
27.7	24.9	23.1	23.5
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

CHANGES IN LAND USE (%). 2011–2014					
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Andalusia	0.6	-0.4	0.4	0.2	0.0
Spain	0.9	-0.2	0.1	1.7	0.0
Source: Compiled in-house from IGN data					

NUMBER OF CONTAMINATED SITES. 2017		
Scope	Declared	Decontaminated / Remediated
Andalusia	590	4
Source: REDIAM. Regional Government of Andalusia.		

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Andalusia	2 836 235.7	82 701.5	2 918 937.2	2 614 081.1	68 396.7	2 682 477.8	2 607 043.2	68 807.4	2 675 850.6
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Andalusia	1 534 922.4	41 315.0	1 576 237.4	139 787.5	6 278.9	146 066.4	37 877.7	46 174.0	84 051.8
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017							
Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous*
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Andalusia	746	203	15 531	10 361	5 170	15 531	-
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5

*No data on herbaceous area
Source: REDIAM. Regional Government of Andalusia (for data on autonomous community)

NUMBER OF ROD AND GUN LICENCES			
2010	2015	2016	2017
Rod: 39 939 Gun: 273 000	Rod: 37 328 Gun: 239 897	Rod: 31 761 Gun: 237 508	Rod: 29 741 Gun: 244 882

Source: REDIAM. Regional Government of Andalusia.

NUMBER OF WILD ANIMALS IN WILDLIFE SHELTERS			
2010	2015	2016	2017
7 638	9 705	5 487	6 104

Source: REDIAM. Regional Government of Andalusia.

AGRICULTURE

ORGANIC CROP AND LIVESTOCK FARMING. 2017	
Organic area (ha)	No of organic livestock farms
976 422	4 934

Source: Regional Ministry of Agriculture, Fishing and Rural Development. Regional Government of Andalusia.

WASTE

WASTE PER CAPITA (kg/capita)						
Year	Household/municipal waste	Separately collected paper/cardboard:	Separately collected glass	Separately collected packaging	Construction and demolition waste	Industrial waste
2016	498	10.75	11.69	10.15	-	-

Source: REDIAM. Regional Government of Andalusia.

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m³) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
54.5	31.8	6.1	6.1	1.5	66
PM10: annual mean concentration (µg/m³) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
0.0	25.0	51.8	23.2	0.0	56
PM2.5: annual mean concentration (µg/m³) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
0.0	48.0	32.0	20.0	0.0	26
O_3: maximum daily levels of eight-hour means (µg/m³). 2016					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
19.6	57.1	23.2			56

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Andalusia	4.843	4.745	4.699	4.524	4.468	4.603	4.691	4.806	-0.77
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

BUSINESS AND SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSES TO REQUESTS FOR INFORMATION			
Requests for information (2017)			
Total	Answered within <1 month	Answered within >1 month	Not answered
278	43	22	0

Source: REDIAM. Regional Government of Andalusia.

NUMBER OF FACILITIES HOLDING ENVIRONMENTAL LICENCES			
2010	2015	2016	2017
543	17	No data	No data

Source: REDIAM. Regional Government of Andalusia

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS. 2017	
No of organisations registered under EMAS	No of products awarded ecolabels
65	134

Source: Regional Ministry of Agriculture, Fishing and Rural Development.

ENVIRONMENTAL REPORTS

- Informe de Medio Ambiente en Andalucía, IMA 2017
- El clima en Andalucía en el siglo XXI
- Guía oficial del Parque Natural Sierra de las Nieves

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

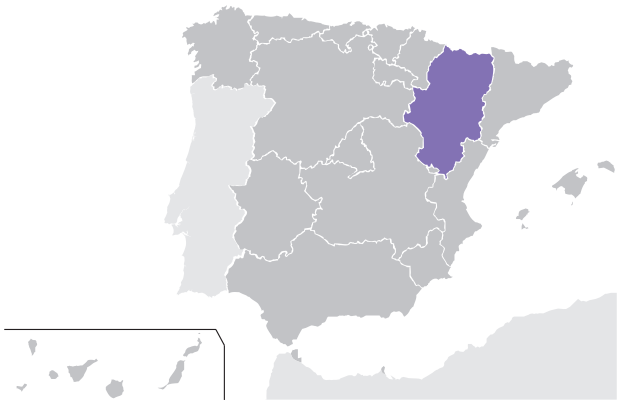
- http://www.juntadeandalucia.es/medioambiente/site/portalweb/
- www.juntadeandalucia.es/medioambiente/site/web/rediam
- www.juntadeandalucia.es/medioambiente/rediam/IMA
- www.juntadeandalucia.es/medioambiente/rediam/indicadores_ambientales
- http://laboratorioredIam.cica.es/VisorRediam/
- http://laboratorioredIam.cica.es/

RELEVANT DATA OR INFORMATION

- Decree 150/2017 of 19 September 2017 approving the Natural Resource Management Plan for the Los Alcornocales district, extending the territory of the Los Alcornocales Nature Park and the Los Alcornocales Special Protection Area for Wild Birds (ES0000049) and approving the Master Plan for Use and Management of the Los Alcornocales Nature Park.
- Extension of the Marismas del Odiel Biosphere Reserve was approved by UNESCO. This measure will support the sustainable development of the municipalities concerned. The extension came into effect on publication of the decision in the BOE of 22 December 2017.
- Law 3/2017 of 2 May 2017 on regulation of footpaths in the Autonomous Community of Andalusia.
- In 2017, Andalusia's inventory of wetlands was increased by 16 to a total of 221. Of those 221 wetlands, 152 form part of Andalusia's network of protected areas.
- In 2017, the International Year of Sustainable Tourism, Andalusia's government travelled to the FITUR tourism show to promote sustainable tourism at its Sierra Norte de Sevilla, Subbética and Cabo de Gata geoparks.
- Andalusia's Regional Ministry of the Environment and Land-Use Planning approved the first Inspection Plan for Cross-Border Waste Shipments in Andalusia, in force from 2017–2019, which will be applied to all waste shipments to or from EU Member States.
- The Regional Government of Andalusia approved a pioneering plan for the recovery and conservation of marine invertebrates and seagrass.
- In 2017, 14 new SACs were declared, creating a total of 163 covering 2 539 890.68 ha.
- The REDIAM has implemented a procedure to monitor and evaluate drought phenomena in Andalusia using a combination of data provided by the region's meteorological stations and satellite images on the state of vegetation.
- Cádiz was the venue for the Third International Congress on Bird Migration and Global Change organised by the Fundación Migres.
- In May 2017, Huelva hosted the First International Congress on Climate Change (SOCC2017) featuring scientific papers given by the world's leading experts in the field.

Note on sources: 'REDIAM. Regional Government of Andalusia' is used for conciseness. The full source is 'Regional Ministry of the Environment and Land-Use Planning. REDIAM (Andalusian Environmental Information Network). Regional Government of Andalusia'.

ARAGON



GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 8/82 of 10 August 1982.
Reform approved by Organic Law 5/2007 of 20 April 2007
Area (INE): 47 720 km^2
Capital: Zaragoza **Provinces:** 3 **Municipalities:** 731
Population (2017): 1 308 750 inhabitants
Population density (2017): 27.4 inhab/km^2
Population change (%) 2000–2017: 10.0 / **2016–2017:** 0.0

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017

Scope	Agriculture	Industry	Construction	Services
Aragon	6.8	18.7	5.4	69.1
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017

Scope	Agriculture	Industry	Construction	Services
Aragon	4.9	22.6	5.5	57.6
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE

2007	2010	2015	2016	2017
5.3	15.0	16.3	14.7	11.7

National average (2018): 16.7

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015

Scope	€/capita	Spain=100	Change 2013–2014 (%)
Aragon	15 566	107.15	1.3
Spain	14 527	100	2.3

EMPLOYMENT RATE

2007	2010	2015	2016	2017
59.4	58.8	58.8	59.3	58.6

National average (2017): 58.8

SCHOOL/TRAINING DROPOUT RATE

2014	2015	2016	2017
18.4	19.5	19.1	16.4

National average (2017): 18.3

ENVIRONMENTAL DATA

SOIL

CHANGES IN LAND USE (%). 2011–2014

Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Aragon	0.4	0.4	-0.3	2.4	0.0
Spain	0.9	-0.2	0.1	1.7	0.0

Source: Compiled in-house from IGN data

NUMBER OF CONTAMINATED SITES. 2017

Scope	Declared	Decontaminated / Remediated
Aragon	9	3

Source: Directorate-General for Development at the Regional Government of Aragon's Department of Rural Development and Sustainability

NATURAL ENVIRONMENT

PROTECTED AREA. 2017

Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Aragon	1 414 123.6	0.0	1 414 123.6	168 264.1	0.0	168 264.1	1 361 299.3	0.0	1 361 299.3
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3

Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Aragon	117 265.3	0.0	117 265.3	16 700.9		16 700.9	0.0	0.0	0.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6

Source: MITECO

FOREST FIRES. 2017

Scope	No of fires		Forest area (ha)					Total affected forest area forming part of a protected area	
			Total (wooded + herbaceous)	Wooded			Herbaceous*		
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous	ha	Area as % of total affected forest area
Aragon	359	105	907.7	256.2	651.5	907.7	0.00	453.4	49.9
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5	-	

Source: Directorate-General for Forestry Management, Hunting and Fishing at the Department of Rural Development and Sustainability. Regional Government of Aragon (for the autonomous community) and MITECO (for Spain).

NUMBER OF ROD AND GUN LICENCES			
2010	2015	2016	2017
72 513	50 909	47 127	64 131

Source: IAGN (Aragon Institute of Environmental Management)

NUMBER OF WILD ANIMALS IN WILDLIFE SHELTERS			
2010	2015	2016	2017
1 432	2 205	1 879	1 983

Source: La Alfranca Wildlife Recovery Centre. Department of Rural Development and Sustainability.

AGRICULTURE

ORGANIC CROP AND LIVESTOCK FARMING. 2016	
Organic area (ha)	No of organic livestock farms
56 885	41

Source: Directorate-General for Food and Agir-food Development at the Department of Rural Development and Sustainability

WASTE

WASTE PER CAPITA (kg/capita)						
Year	Household and commercial waste	Separately collected paper/cardboard:	Separately collected glass	Separately collected packaging	Construction and demolition waste (total tonnes)	Industrial waste
2016	1.18	17.40	13.58	13.66	466 288.97	-

Source: Directorate-General for Environmental Quality

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_x: annual mean concentration (µg/m³) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
54.5	31.8	6.1	6.1	1.5	10
PM10: annual mean concentration (µg/m³) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
10.0	70.0	20.0	0.0	0.0	10
PM2.5: annual mean concentration (µg/m³) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
20.0	80.0	0.0	0.0	0.0	25
O_3: maximum daily levels of eight-hour means (µg/m³). 2016					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
38.5	61.5	0.0			13

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Aragon	7.852	7.727	7.587	7.501	7.613	7.817	7.974	8.108	3.26
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

BUSINESS AND SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSES TO REQUESTS FOR INFORMATION			
Requests for information (2017)			
Total	Answered within <1 month	Answered within >1 month	Not answered
17 727	17 693	34	0

Source: Technical Secretariat-General at the Department of Rural Development and Sustainability. Regional Government of Aragon

NUMBER OF FACILITIES HOLDING ENVIRONMENTAL LICENCES			
2010	2015	2016	2017
49	84	86	-

Source: IAGN (Aragon Institute of Environmental Management)

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS. 2017	
No of organisations registered under EMAS	No of products awarded ecolabels
17	259

Source: IAGN (Aragon Institute of Environmental Management)

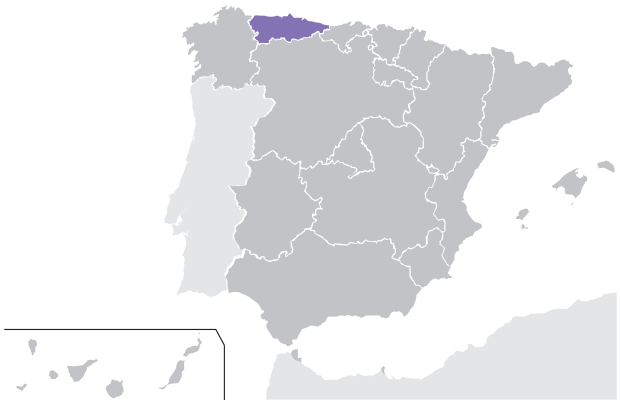
PUBLICATIONS ON THE ENVIRONMENT

- Informe del Estado del Medio Ambiente en Aragón 2015
- Environmental e-newsletter
- Publications by the CPN (Nature Protection Council)
- El urogallo pirenaico en Aragón
- El ave de las nieves, el lagópodo alpino pirenaico

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_InformacionDAtosAmbientales?channelSelected=de0890292fb3a210VgnVCM100000450a15acRCRD
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_InformacionDAtosAmbientales/ci.INFORME_MEDIO_AMBIENTE.detalleDepartamento?channelSelected=de0890292fb3a210VgnVCM100000450a15acRCRD
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_Atmosfera?channelSelected=11b736552883a210VgnVCM100000450a15acRCRD
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_Biodiversidad?channelSelected=4ab736552883a210VgnVCM100000450a15acRCRD
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_CambioClimatico?channelSelected=afc736552883a210VgnVCM100000450a15acRCRD
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_EducacionSensibilizacion?channelSelected=f1f736552883a210VgnVCM100000450a15acRCRD
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_RedNaturalAragon?channelSelected=ac4890292fb3a210VgnVCM100000450a15acRCRD
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_Residuos?channelSelected=0b5890292fb3a210VgnVCM100000450a15acRCRD

ASTURIAS



GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 7/81 of 30 December 1981
Area (INE): 10 602 km²
Mean length of coastline: 656.0 km (6.4 % of the Spanish total)
Capital: Oviedo **Provinces:** 1 **Municipalities:** 78
Population (2017): 1 034 960 inhabitants
Population density (2017): 97.6 inhab/km²
Population change (%) 2000–2017: -3.9 / **2016–2017:** -0.7

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Asturias	3.9	15.1	5.7	75.3
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Asturias	1.4	20.4	6.2	62.6
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
8.4	15.9	19.1	17.6	13.7

National average (2017): 17.2

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Asturias	14 854	102.25	2.1
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
50.5	51.8	51.0	51.7	50.9

National average (2017): 58.8

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
13.6	16.8	16.6	14.8

National average (2017): 18.3

ENVIRONMENTAL DATA

SOIL

BREAKDOWN BY LAND USE (%). 2016					
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Asturias	-0.9	0.0	0.0	0.1	0.0
Spain	0.9	-0.2	0.1	1.7	0.0

Source: Compiled in-house from IGN data

NATURAL ENVIRONMENT

PROTECTED AREA. 2016									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Asturias	352 583.8	19 816.5	372 400.2	235 824.5	4 108.1	239 932.6	285 027.1	19 813.2	304 840.3
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Asturias	244 725.0	98.2	244 823.3	2 214.3	365.3	2 579.6	0.0	0.0	0.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6

Source: MITECO

FOREST FIRES. 2016							
Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Asturias	723	1 006	27 789.4	4 419.6	23 263.5	27 683.1	106.2
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5

Source: MITECO

NUMBER OF ROD AND GUN LICENCES. 2015				
Scope	Gun	%	Rod	%
Asturias	7 054	0.9	15 977	2.8
Spain	823 453	100.0	577 636	100.0

Source: MITECO

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m³) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
30.4	60.9	4.3	4.3	0.0	23
PM10: annual mean concentration (µg/m³) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
0.0	40.9	50.0	4.5	4.5	22
PM2.5: annual mean concentration (µg/m³) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
11.1	66.7	22.2	0.0	0.0	9
O_3: maximum daily levels of eight-hour means (µg/m³). 2016					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
71.4	28.6	0.0			21

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Asturias	9.946	10.134	9.597	9.750	9.713	9.958	10.102	10.225	2.81
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

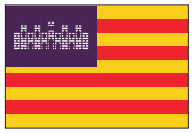
Source: Compiled in-house from REE and INE data.

PUBLICATIONS ON THE ENVIRONMENT

- Perfil Ambiental de Asturias 2016

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- https://www.asturias.es/portal/site/medioambiente/
- http://www.cogersa.es/



BALEARIC ISLANDS

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 2/83 of 25 February 1983 (BOE No 51 of 1 March 1983), text as per Organic Law 1/2007 of 28 February 2007
Area (INE): 4 992 km²
Mean length of coastline: 1 330 km (12.9 % of the Spanish total)
Capital: Palma de Mallorca **Provinces:** 1 **Municipalities:** 67
Population (2017): 1 115 999 inhabitants
Population density (2017): 223.6 inhab/km²
Population change (%) 2000–2017: 32 / **2016–2017:** 0.8

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017

Scope	Agriculture	Industry	Construction	Services
Balearic Islands	0.8	7.6	9.6	81.9
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017

Scope	Agriculture	Industry	Construction	Services
Balearic Islands	0.5	6.5	5.7	78.0
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE

2007	2010	2015	2016	2017
7.2	20.1	17.3	13.9	12.4

National average (2017): 17.2

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015

Scope	€/capita	Spain=100	Change 2013–2014 (%)
Balearic Islands	14 790	101.81	2.5
Spain	14 527	100	2.3

EMPLOYMENT RATE

2007	2010	2015	2016	2017
64.4	66.3	65.8	65.2	64.1

National average (2017): 58.8

SCHOOL/TRAINING DROPOUT RATE

2014	2015	2016	2017
32.1	26.7	26.8	26.5

National average (2017): 18.3

ENVIRONMENTAL DATA

SOIL

CHANGES IN LAND USE (%). 2011–2014

Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Balearic Islands	1.0	1.2	0.0	3.4	0.6
Spain	0.9	-0.2	0.1	1.7	0.0

Source: Compiled in-house from IGN data

NATURAL ENVIRONMENT

PROTECTED AREA. 2017

Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Balearic Islands	178 403.6	107 065.3	285 468.9	74 708.9	25 680.9	100 389.8	115 437.1	106 462.6	221 899.7
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3

Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Balearic Islands	70 087.9	1 749.2	71 837.2	3 169.4	174.3	3 343.7	1 315.1	8 771.8	10 086.9
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6

Source: MITECO

FOREST FIRES. 2017

Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Balearic Islands	84	14	168.00	49.60	87.20	136.80	31.20
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5

Source: MITECO

NUMBER OF ROD AND GUN LICENCES. 2015				
Scope	Gun	%	Rod	%
Balearic Islands	11 766	1.4	805	0.1
Spain	823 453	100.0	577 636	100.0

Source: MITECO

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m³) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
76.5	17.6	0.0	5.9	0.0	17
PM10: annual mean concentration (µg/m³) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
0.0	86.7	13.3	0.0	0.0	15
PM2.5: annual mean concentration (µg/m³) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
33.3	66.7	0.0	0.0	0.0	3
O_3: maximum daily levels of eight-hour means (µg/m³). 2016					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
41.2	52.9	5.9			17

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Balearic Islands	5.280	5.160	5.201	5.104	5.062	5.248	5.267	5.402	2.30
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

PUBLICATIONS ON THE ENVIRONMENT

- Reports on the state of the environment in the Balearic Islands

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- Regional Government: www.caib.es

CANARY ISLANDS

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 10/82 of 10 August 1982
Area (INE): 7 447 km²
Mean length of coastline: 1 485 km (14.4 % of the Spanish total)
Capital: Las Palmas de Gran Canaria and Santa Cruz de Tenerife
Provinces: 2 **Municipalities:** 88
Population (2017): 2 108 121 inhabitants
Population density (2017): 283.1 inhab/km²
Population change (%) 2000–2017: 22.8 / **2016–2017:** 0.3

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Canary Islands	2.6	4.1	5.3	87.9
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
5,5	1.2	6.9	4.9	77.6
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
10.5	28.6	29.1	26.1	23.5
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Canary Islands	12 187	83.89	2.9
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
60.9	61.9	61.9	61.1	60.3
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
23.8	21.9	18.9	17.5
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

CHANGES IN LAND USE (%). 2011–2014					
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Canary Islands	0.9	0.1	-0.1	0.1	0.0
Spain	0.9	-0.2	0.1	1.7	0.0
Source: Compiled in-house from IGN data					

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Canary Islands	575 613.5	83 816.2	659 429.8	302 037.6	37 173.2	339 210.8	347 952.3	13 358.3	361 310.6
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Canary Islands	467 647.0	364 799.4	832 446.4	95.2	0.4	95.6	0.0	0.0	0.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2016							
Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Canary Islands	80	4	1 949.62	775.40	1 166.23	1 941.63	7.99
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5
Source: MITECO							

NUMBER OF ROD AND GUN LICENCES. 2015				
Scope	Gun	%	Rod	%
Canary Islands	16 346	2.0	-	-
Spain	823 453	100.0	577 636	100.0

Source: MITECO

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m³) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
68.1	27.7	2.1	2.1	0.0	47
PM10: annual mean concentration (µg/m³) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
0.0	33.3	66.7	0.0	0.0	48
PM2.5: annual mean concentration (µg/m³) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
32.5	65.0	2.5	0.0	0.0	40
O_3: maximum daily levels of eight-hour means (µg/m³). 2016					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
77.3	22.7	0.0			44

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

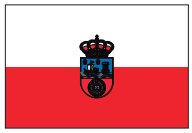
ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Canary Islands	4.199	4.171	4.198	4.070	4.076	4.128	4.176	4.249	1.21
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

PUBLICATIONS ON THE ENVIRONMENT

- Estado del medio ambiente en Canarias. Situation reports



CANTABRIA

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 8/1981 of 30 December 1981 on the Statute of Autonomy of Cantabria
Area (INE): 5 326 km²
Mean length of coastline: 615.0 km (6.0 % of the Spanish total)
Capital: Santander **Provinces:** 1 **Municipalities:** 102
Population (2017): 580 295 inhabitants
Population density (2017): 108.9 inhab/km²
Population change (%) 2000–2017: 9.3 / **2016–2017:** -0.3

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Cantabria	3.0	15.1	6.2	75.7
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Cantabria	1.4	20.8	6.2	62.2
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
6.0	13.7	17.7	14.9	13.6
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Cantabria	14 190	97.7	1.9
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
56.6	56.1	56.1	56.1	55.8
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
9.7	10.3	8.6	8.9
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

CHANGES IN LAND USE (%). 2011–2014					
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Cantabria	2.9	-0.3	0.1	0.5	0.1
Spain	0.9	-0.2	0.1	1.7	0.0
Source: Compiled in-house from IGN data					

NATURAL ENVIRONMENT

PROTECTED AREA. 2016									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Cantabria	151 033.8	1 868.5	152 902.3	150 991.7	1 868.4	152 860.1	145 807.8	1 855.5	147 663.3
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Cantabria	14 965.9	0.0	14 965.9	5 602.2	1 076.8	6 678.9	0.0	0.0	0.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2016							
Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Cantabria	101	641	11 304.9	3 073.5	7 764.4	10 837.9	467.02
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5
Source: MITECO							

NUMBER OF ROD AND GUN LICENCES. 2015				
Scope	Gun	%	Rod	%
Cantabria	6 368	0.8	6 387	1.1
Spain	823 453	100.0	577 636	100.0

Source: MITECO

AGRICULTURE

ORGANIC CROP AND LIVESTOCK FARMING. 2017	
Organic area (ha)	No of organic livestock farms
3 169.16	123

Source: ODECA

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m³) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
18.2	63.6	18.2	0.0	0.0	11
PM10: annual mean concentration (µg/m³) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
9.1	63.6	27.3	0.0	0.0	11
PM2.5: annual mean concentration (µg/m³) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
0.0	100.0	0.0	0.0	0.0	4
O_3: maximum daily levels of eight-hour means (µg/m³). 2016					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
87.5	12.5	0.0			8

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Cantabria	7.374	7.541	7.408	7.409	7.341	7.259	7.246	7.528	2.09
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSES TO REQUESTS FOR INFORMATION			
Requests for information (2017)			
Total	Answered within <1 month	Answered within >1 month	Not answered
3 239	2 659	576	4

Source: Environmental Information and Sustainability Service. CIMA (Centre for Environmental Research).

NUMBER OF FACILITIES HOLDING ENVIRONMENTAL LICENCES			
2010	2015	2016	2017
64	59	60	60

Source: Directorate-General for the Environment. Environmental Impact and Licensing Service.

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS. 2017	
No of organisations registered under EMAS	No of products awarded ecolabels
17	0

Source: Directorate-General for the Environment

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- www.medioambientecantabria.es
- http://cima.cantabria.es/
- https://www.airecantabria.com/
- https://www.meteocantabria.es/

CASTILE AND LEON

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 14/2007 of 30 November 2007, reforming the Statute of Autonomy of Castile and Leon
Area (INE): 94 227 km²
Capital: Valladolid **Provinces:** 9 **Municipalities:** 2 248
Population (2017): 2 425 801 inhabitants
Population density (2017): 25.7 inhab/km²
Population change (%) 2000–2017: -2.2 / **2016–2017:** -0.9

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Castile and Leon	6.2	17.2	6.8	69.7
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Castile and Leon	4.1	20.6	5.7	60.2
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
7.1	15.8	18.3	15.8	14.1
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Castile and Leon	14 397	99.11	2.3
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
53.7	55.1	54.8	55.1	54.8
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
16.8	16.7	17.3	16.7
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

CHANGES IN LAND USE (%). 2011–2014					
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Castile and Leon	3.2	-0.3	0.1	2.5	0.0
Spain	0.9	-0.2	0.1	1.7	0.0
Source: Compiled in-house from IGN data					

NUMBER OF CONTAMINATED SITES (2016)		
Scope	Declared	Decontaminated / Remediated
Castile and Leon	11 (1)	5 (2)
(1) Sum of sites declared contaminated (7) + sites approved for voluntary recovery under Article 38 (4) (2) Sites declared contaminated Source: Regional Government of Castile and Leon		

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Castile and Leon	2 943 171.2	0.0	2 943 171.2	769 973.0	0.0	769 973.0	2 464 998.0	0.0	2 464 998.0
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Castile and Leon	998 642.0	0.0	998 642.0	3 040.1		3 040.1	0.0	0.0	0.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017							
Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Castile and Leon	1 597	1 079	39 599.4	10 498.0	23 336.5	33 834.5	5 764.9
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5
Source: Regional Government of Castile and Leon (for data on autonomous community) and MITECO (for Spain)							

NUMBER OF ROD AND GUN LICENCES			
2010	2015	2016	2017
414 422	309 074	311 422	-

Source: Regional Government of Castile and Leon

NUMBER OF WILD ANIMALS IN WILDLIFE SHELTERS			
2010	2015	2016	2017
-	4 581	4 593	-

Source: Regional Government of Castile and Leon

AGRICULTURE

ORGANIC CROP AND LIVESTOCK FARMING. 2017	
Organic area (ha)	No of organic livestock farms
36 849	-

Source: MITECO

WASTE

WASTE PER CAPITA (kg/capita)						
Year	Household/municipal waste	Separately collected paper/cardboard:	Separately collected glass	Separately collected packaging	Construction and demolition waste	Industrial waste
2016	408.46 (1)	17.5	13.58	11.76	390.0 (2014) (2)	No data

(1) Household waste is defined as the sum of the remaining fraction or entire amount collected + the quantities of glass, paper/cardboard, lightweight packaging and organic matter collected separately.
(2) 2014 data (t/capita/year). This figure is the ratio between the annual volume of CDW entering authorised CDW treatment plants in Castile and Leon and the population of Castile and Leon. It is used by the MITECO to estimate CDW generation in Castile and Leon. Source: Regional Government of Castile and Leon

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m^3) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
69.7	24.2	6.1	0.0	0.0	33
PM10: annual mean concentration (µg/m^3) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
10.3	82.8	6.9	0.0	0.0	29
PM2.5: annual mean concentration (µg/m^3) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
20.0	70.0	10.0	0.0	0.0	10
O_3: maximum daily levels of eight-hour means (µg/m^3). 2016					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
11.8	88.2	0.0			34

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Castile and Leon	5.475	5.292	5.392	5.429	5.434	5.609	5.783	5.817	6.24
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSES TO REQUESTS FOR INFORMATION			
Requests for information (2017)			
Total	Answered within <1 month	Answered within >1 month	Not answered
135	36	70	29

Source: Regional Government of Castile and Leon

NUMBER OF FACILITIES HOLDING ENVIRONMENTAL LICENCES			
2010	2015	2016	2017
-	714	770	880

Source: Regional Government of Castile and Leon

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS. 2017	
No of organisations registered under EMAS	No of products awarded ecolabels
20	10

Source: Regional Government of Castile and Leon

PUBLICATIONS ON THE ENVIRONMENT

- Medio ambiente Castilla y León 2016 (https://medioambiente.jcyl.es/web/jcyl/MedioAmbiente/es/Plantilla100/1131977831418/_/_/_).
- Environmental reports (https://medioambiente.jcyl.es/web/jcyl/MedioAmbiente/es/Plantilla100/1131977831418/_/_/_)

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- The environment in Castile and Leon (https://medioambiente.jcyl.es/web/jcyl/MedioAmbiente/es/Plantilla100/1246988359553/_/_/_)
- Environmental indicators and statistics
- (https://medioambiente.jcyl.es/web/jcyl/MedioAmbiente/es/Plantilla100/1246988908512/_/_/_)

RELEVANT DATA OR INFORMATION

- Key data on Castile and Leon (https://medioambiente.jcyl.es/web/jcyl/MedioAmbiente/es/Plantilla100Detalle/1246988359553/_/1284799064357/Estructura?plantillaObligatoria=17PlantillaComponenteListado)

CASTILE-LA MANCHA

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 9/82 of 10 August 1982
Area (INE): 7 947 km²
Capital: Toledo Provinces: 5 **Municipalities:** 919
Population (2017): 2 031 479 inhabitants
Population density (2017): 25.6 inhab/km²
Population change (%) 2000–2017: 17.1 / **2016–2017:** -0.5

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Castile-La Mancha	7.9	16.4	7.5	68.3
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Castile-La Mancha	7.7	18.9	6.2	56.9
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
7.7	21.2	26.4	23.6	20.8
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Castile-La Mancha	12 067	83.07	3.2
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
56.7	58.3	58.6	58.5	58.9
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
22.3	20.8	23.2	22.1
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

CHANGES IN LAND USE (%). 2011–2014					
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Castile-La Mancha	0.4	-0.2	0.2	0.8	0.0
Spain	0.9	-0.2	0.1	1.7	0.0
Source: Compiled in-house from IGN data					

NUMBER OF CONTAMINATED SITES (2016)		
Scope	Declared	Decontaminated / Remediated
Castile-La Mancha	2	2*
*1 remediated +1 in remediation Source: Deputy Regional Ministry of the Environment		

NATURAL ENVIRONMENT

PROTECTED AREA. 2016									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Castile-La Mancha	2 277 766.5	0.0	2 277 766.5	583 013.5	0.0	583 013.5	1 837 533.5	0.0	1 837 533.5
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Castile-La Mancha	418 066.2	0.0	418 066.2	10 341.9	0.0	10 341.9	0.0	0.0	0.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017								
Scope	No of fires		Forest area (ha)				Total affected forest area forming part of a protected area	
			Total (wooded + herbaceous)	Wooded			Herbaceous*	
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous	ha	Area as % of total affected forest area
Castile-La Mancha	592	245	6 331.5	4 830.5	761.1	5 591.6	739.9	1 082.4	17.0
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5	-	-
Source: Forest Fire Information System/EGIF (for the autonomous community) and MITECO (for Spain)									

NUMBER OF ROD AND GUN LICENCES			
2010	2015	2016	2017
328 323	235 408	209 553	192 522

Source: Directorate-General for Forestry Policy and Natural Areas

NUMBER OF WILD ANIMALS IN WILDLIFE SHELTERS			
2010	2015	2016	2017
2 619	3 318	2 702	3 088

Source: Wildlife Recovery Centres

AGRICULTURE

ORGANIC CROP AND LIVESTOCK FARMING. 2017	
Organic area (ha)	No of organic livestock farms
391 353	318

Source: Regional Ministry of Agriculture, Environment and Rural Development and MITECO

WASTE

WASTE PER CAPITA (kg/capita)						
Year	Household/municipal waste	Separately collected paper/cardboard:	Separately collected glass	Separately collected packaging	Construction and demolition waste	Industrial waste
2017	367.14	9.8*	13.9*	9.8*	445.51	330.92

*Data supplied by the SCRAP operating in CLM. Domestic/municipal waste: reports by consortia and councils. Construction, demolition and industrial waste: reports by waste management organisations.
Source: Deputy Regional Ministry of the Environment

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m^3) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
8.3	91.7	0.0	0.0	0.0	12
PM10: annual mean concentration (µg/m^3) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
9.1	9.1	63.6	18.2	0.0	11
PM2.5: annual mean concentration (µg/m^3) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
40.0	40.0	20.0	0.0	0.0	5
O_3: maximum daily levels of eight-hour means (µg/m^3). 2016					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
7.1	50.0	42.9			14

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Castile-La Mancha	5.759	5.673	5.665	5.536	5.605	5.619	5.768	5.766	0.12
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSES TO REQUESTS FOR INFORMATION			
Requests for information (2017)			
Total	Answered within <1 month	Answered within >1 month	Not answered
652	609	40	3*

* These unanswered requests correspond to requests not completed by the party concerned who, after making a request by email or telephone, was instructed to make a formal request via the form on the website but failed to do so. Source: Deputy Regional Ministry of the Environment. Regional Ministry of Agriculture, Environment and Rural Development.

NUMBER OF FACILITIES HOLDING ENVIRONMENTAL LICENCES			
2010	2015	2016	2017
348	414	422	432

Source: Deputy Regional Ministry of the Environment. The data refer to the number of facilities holding a current environmental licence at any point in the reference year.

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS. 2017	
No of organisations registered under EMAS	No of products awarded ecolabels
8	122

Source: Deputy Regional Ministry of the Environment

PUBLICATIONS ON THE ENVIRONMENT

- http://www.castillalamancha.es/gobierno/agrimedambydesrur/estructura/dgapfyen/actuaciones/publicaciones-sobre-biodiversidad-y-espacios-naturales
- http://www.castillalamancha.es/gobierno/agrimedambydesrur/estructura/dgapfyen/actuaciones/publicaciones-forestales
- Castile-La Mancha Environmental Inspection Plan 2018–2024
- http://docm.castillalamancha.es/portaldocm/descargarArchivo.do?ruta=2018/04/05/pdf/2018_4001.pdf&tipo=rutaDocm
- Bioregio newsletter

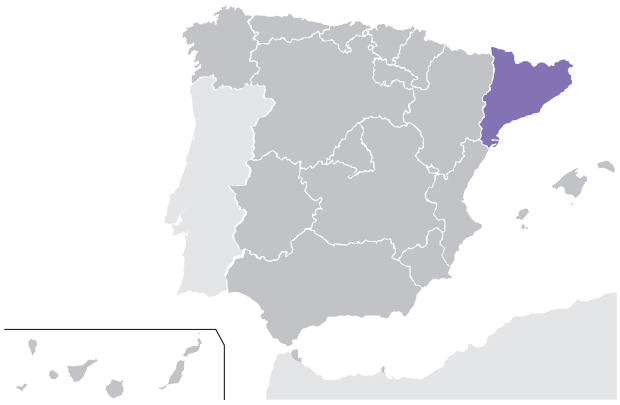
LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- 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-climático-0
- http://www.castillalamancha.es/gobierno/agrimedambydesrur/estructura/dgapfyen/actuaciones/red-natura-2000tramitación-de-planes-de-gestión-y-declaración-de-zec
- http://www.castillalamancha.es/gobierno/agrimedambydesrur/estructura/dgapfyen/actuaciones/planes-de-recuperación-del-Águila-perdicera
- http://www.castillalamancha.es/tema/medio-ambiente/caza-y-pesca
- http://agricultura.jccm.es/fidias08/consulta/forms/fidif001.php?auth=ANONIMO
- http://www.castillalamancha.es/gobierno/agrimedambydesrur

RELEVANT DATA OR INFORMATION

- The Deputy Regional Ministry of the Environment is a partner in the international BIOREGIO (2017–2021) project that forms part of the Interreg Europe programme: http://www.castillalamancha.es/gobierno/agrimedambydesrur/estructura/vic-medamb/actuaciones/proyecto-bioregio-interreg-europe
- Environmental education programmes: http://www.castillalamancha.es/gobierno/agrimedambydesrur/estructura/vicmedamb/actuaciones/educación-ambiental
- Energy saving and efficiency: http://www.castillalamancha.es/gobierno/economiaem-presasyempleo/actuaciones/ahorro-y-eficiencia-energética

CATALONIA



GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 6/2006 of 19 July 2006 on the reform of the Statute of Autonomy of Catalonia
Area (INE): 32 090 km²
Mean length of coastline: 811.9 km (7.9 % of the Spanish total)
Capital: Barcelona **Provinces:** 4 **Municipalities:** 947
Population (2017): 7 555 830 inhabitants
Population density (2017): 235.5 inhab/km²
Population change (%) 2000–2017: 20.7 / **2016–2017:** 0.4

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Catalonia	1.7	18.0	6.4	73.9
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Catalonia	1.0	20.0	4.5	65.2
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
6.5	17.7	18.6	15.7	13.4
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Catalonia	16 908	116.39	2.2
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
63.3	63.8	62.3	62.0	61.7
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
22.2	18.9	18.0	17.0
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

CHANGES IN LAND USE (%). 2011–2014					
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Catalonia	0.4	0.4	-0.3	1.3	0.0
Spain	0.9	-0.2	0.1	1.7	0.0
Source: Compiled in-house from IGN data					

NUMBER OF CONTAMINATED SITES. 2017		
Scope	Declared	Decontaminated / Remediated
Catalonia	2 655	1590*
*Sites investigated and/or remediated Source: Catalonia Waste Management Agency		

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Catalonia	1 226 342.0	93 045.3	1 319 387.2	1 025 684.3	85 938.4	1 111 622.7	982 693.3	85 917.4	1 068 610.7
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Catalonia	337 925.5	80 617.2	418 542.7	52 963.4	705.7	53 669.1	10 871.2	3 664.8	14 536.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017							
Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Catalonia	549	85	1 274.0	526.8	594.7	1 121.5	152.5
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5
Source: MITECO							

NUMBER OF ROD AND GUN LICENCES			
2010	2015	2016	2017
Rod: 53 077 Gun: 74 000	Rod: 55 865 Gun: 48 000	Rod: 54 362 Gun: 42 000	Rod: 55 802 Gun: 41 000

Source: Department of Agriculture, Livestock Farming, Fisheries and Food

NUMBER OF WILD ANIMALS IN WILDLIFE SHELTERS			
2010	2015	2016	2017
7 373	12 207	12 459	14 833

Source: Department of Agriculture, Livestock Farming, Fisheries and Food

WASTE

WASTE PER CAPITA (kg/capita)						
Year	Household/municipal waste	Separately collected paper/cardboard:	Separately collected glass	Separately collected packaging	Construction and demolition waste	Industrial waste
2016	509.60	39.18	24.18	19.29	15.48	3 618 076

Note: industrial waste is expressed in total tonnes.
Source: Catalonia Waste Management Agency

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m^3) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
27.3	28.8	13.6	21.2	9.1	66
PM10: annual mean concentration (µg/m^3) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
0.0	37.5	55.7	6.8	0.0	88
PM2.5: annual mean concentration (µg/m^3) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
0.0	47.2	41.7	11.1	0.0	36
O_3: maximum daily levels of eight-hour means (µg/m^3). 2015					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
5.6	63.9	30.6			36

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Catalonia	6.527	6.392	6.307	6.126	6.068	6.213	6.189	6.307	-3.38
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

BUSINESS AND SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSES TO REQUESTS FOR INFORMATION			
Requests for information (2017)			
Total	Answered within <1 month	Answered within >1 month	Not answered
12 113	11 535	558	20

Source: Secretariat for the Environment and Sustainability

NUMBER OF FACILITIES HOLDING ENVIRONMENTAL LICENCES			
2010	2015	2016	2017
-	-	-	1 621

Note: 2017 is the first year for which full data are available.
Source: Directorate-General for Environmental Quality. Secretariat for the Environment and Sustainability

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS. 2017	
No of organisations registered under EMAS	No of products awarded ecolabels
234	14 318*

*EU ecolabel products and services
Source for organisations registered under EMAS: MITECO
Source for ecolabelling: Directorate-General for Environmental Quality. Secretariat for the Environment and Sustainability

PUBLICATIONS ON THE ENVIRONMENT

- Informe sobre l'estat del medi ambient. Període 2011 - 2015
- Informe sobre l'estat del medi ambient 2016–2017
- Datos del medio ambiente en Cataluña 2018

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- http://mediambient.gencat.cat/es/05_ambits_dactuacio/index.html
- http://mediambient.gencat.cat/es/05_ambits_dactuacio/residus/
- http://es.meteocat.gencat.cat/?lang=es
- http://mediambient.gencat.cat/es/05_ambits_dactuacio/aigua/
- http://agricultura.gencat.cat/es/ambits/agricultura/index.html
- http://icaen.gencat.cat/es/inici/index.html

CEUTA

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 1/1995 of 13 March 1995 on the Statute of Autonomy of Ceuta
Area (INE): 19 km²
Mean length of coastline: 22.7 km (0.2 % of the Spanish total)
Capital: Ceuta **Provinces:** 1 **Municipalities:** 1
Population (2017): 84 959 inhabitants
Population density (2017): 4471.5 inhab/km²
Population change (%) 2000–2017: 12.9 / **2016–2017:** 0.5

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Ceuta	-	2.0	3.0	94.9
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Ceuta	0.2	5.5	4.3	80.6
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
21.0	23.9	27.6	24.9	22.5
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Ceuta	12 476	85.88	2.8
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
53.5	56.6	57.3	57.4	55.8
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
29.5	29.8	21.5	20.1
National average (2017): 18.3			

ENVIRONMENTAL DATA

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Ceuta	630.5	836.2	1 466.7	0.0	0.0	0.0	630.5	836.2	1 466.7
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	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	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017							
Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Ceuta	0	0	0.00	0.00	0.00	0.00	0.00
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5
Source: MITECO							

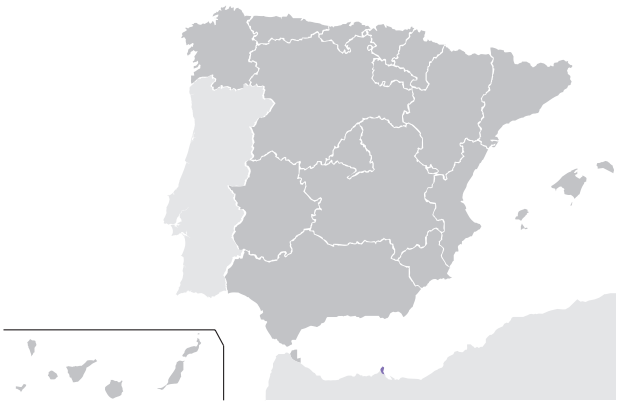
ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Ceuta	2.705	2.464	2.524	2.400	2.499	2.438	2.493	2.388	-11.74
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80
Source: Compiled in-house from REE and INE data.									

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- http://www.ceuta.es/ceuta/por-consejerias/medio-ambiente

MELILLA



GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 2/1995 of 13 March 1995 on the Statute of Autonomy of Melilla
Area (INE): 13 km²
Mean length of coastline: 7.3 km (0.1 % of the Spanish total)
Capital: Melilla **Provinces:** 1 **Municipalities:** 1
Population (2017): 86 120 inhabitants
Population density (2017): 6624.6 inhab/km²
Population change (%) 2000–2017: 30.0 / **2016–2017:** 0.1

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017

Scope	Agriculture	Industry	Construction	Services
Melilla	0.5	1.8	4.1	93.5
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017

Scope	Agriculture	Industry	Construction	Services
Melilla	0.1	4.9	4.6	81.1
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE

2007	2010	2015	2016	2017
18.2	22.8	34.0	30.8	27.6

National average (2017): 17.2

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015

Scope	€/capita	Spain=100	Change 2013–2014 (%)
Melilla	11 138	76.67	2.7
Spain	14 527	100	2.3

EMPLOYMENT RATE

2007	2010	2015	2016	2017
55.8	54.1	57.3	58.6	59.7

National average (2017): 58.8

SCHOOL/TRAINING DROPOUT RATE

2014	2015	2016	2017
19.6	24.1	24.4	27.5

National average (2017): 18.3

ENVIRONMENTAL DATA

NATURAL ENVIRONMENT

PROTECTED AREA. 2017

Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	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	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3

Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	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	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6

Source: MITECO

FOREST FIRES. 2017

Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Melilla	0	0	0.00	0.00	0.00	0.00	0.00
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5

Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)

Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Melilla	2.801	2.738	2.691	2.506	2.484	2.495	2.421	2.445	-12.71
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- http://www.melillamedioambiente.com/

EXTREMADURA

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 1/2011 of 28 January 2011 on the reform of the Statute of Autonomy of the Autonomous Community of Extremadura
Area (INE): 41 634 km²
Capital: Mérida **Provinces:** 2 **Municipalities:** 388
Population (2017): 1 079 920 inhabitants
Population density (2017): 25.9 inhab/km²
Population change (%) 2000–2017: 1.0 / **2016–2017:** -0.7

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Extremadura	12.4	9.3	6.4	72.0
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Extremadura	8.1	13.1	6.7	62.8
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
13.0	23.0	29.1	27.5	26.2
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Extremadura	10 981	75.6	2.8
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
52.9	54.5	55.2	55.1	54.8
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
22.9	24.5	20.4	19.2
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

CHANGES IN LAND USE (%). 2011–2014					
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Extremadura	1.3	0.0	-0.2	4.1	0.0
Spain	0.9	-0.2	0.1	1.7	0.0
Source: Compiled in-house from IGN data					

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Extremadura	1 427 305.4	0.0	1 427 305.4	316 608.6	0.0	316 608.6	1 263 943.2	0.0	1 263 943.2
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Extremadura	376 428.7	0.0	376 428.7	6 990.4	0.0	6 990.4	0.0	0.0	0.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017							
Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Extremadura	564	461	7 245.51	1 106.88	3 120.91	4 227.79	3 017.72
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5
Source: MITECO							

NUMBER OF ROD AND GUN LICENCES. 2015				
Scope	Gun	%	Rod	%
Extremadura	42 813	5.2	77 612	13.4
Spain	823 453	100.0	577 636	100.0

Source: MITECO

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m^3) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
85.7	14.3	0.0	0.0	0.0	7
PM10: annual mean concentration (µg/m^3) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
0.0	100.0	0.0	0.0	0.0	7
PM2.5: annual mean concentration (µg/m^3) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
40.0	60.0	0.0	0.0	0.0	5
O_3: maximum daily levels of eight-hour means (µg/m^3). 2016					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
14.3	42.9	42.9			7

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Extremadura	4.508	4.253	4.412	4.408	4.218	4.424	4.557	4.693	4.10
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

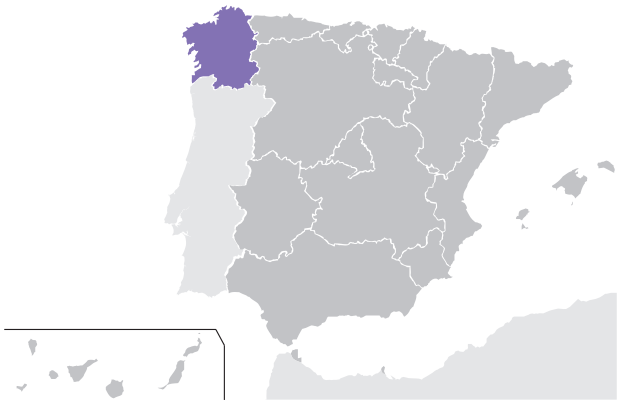
PUBLICATIONS ON THE ENVIRONMENT

- http://extremadamente/index.php
- www.observatorioclimatico.es
- http://xtr.gobex.es/repica/

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- http://extremadamente/index.php
- www.observatorioclimatico.es
- http://xtr.gobex.es/repica/

GALICIA



GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 1/1981 of 6 April 1981 on the Statute of Autonomy of Galicia
Area (INE): 29 575 km²
Mean length of coastline: 1 890 km (18.4 % of the Spanish total)
Capital: Santiago de Compostela **Provinces:** 4 **Municipalities:** 313
Population (2017): 2 708 339 inhabitants
Population density (2017): 91.6 inhab/km²
Population change (%) 2000–2017: -0.9 / **2016–2017:** -0.4

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Galicia	7.1	16.3	6.3	70.3
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Galicia	5.1	18.9	6.2	60.5
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
7.6	15.3	19.3	17.2	15.7
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Galicia	13 364	92.0	1.7
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
54.0	54.2	53.5	53.5	53.3
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
18.5	17.0	15.2	14.9
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

BREAKDOWN BY LAND USE (%). 2016					
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Galicia	-0.1	-3.1	1.2	4.4	0.0
Spain	0.9	-0.2	0.1	1.7	0.0
Source: Compiled in-house from IGN data					

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Galicia	970 116.7	37 184.6	1 007 301.3	359 415.6	39 314.8	398 730.4	355 283.4	34 569.8	389 853.2
Spain	16 583 845.9	8 526 058.5	25 109 904.5	7 363 769.1	511 448.0	7 875 217.1	13 825 029.8	8 432 232.3	22 257 262.1
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Galicia	726 535.4	2 930.2	729 465.6	4 563.4	3 108.3	7 671.6	0.0	0.0	0.0
Spain	5 544 272.4	485 267.4	6 029 539.7	281 220.5	25 605.5	306 826.0	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017								
Scope	No of fires		Forest area (ha)				Total affected forest area forming part of a protected area	
			Total (wooded + herbaceous)	Wooded		Herbaceous*		
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	ha	Area as % of total affected forest area
Galicia	2 302	947	61 901.7	29 278.3	32 623.3	61 901.7	0.00	11 154.9	18.02
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5	-	-
Directorate-General for Forestry Management. Regional Government of Galicia (for the autonomous community) and MITECO (for Spain).									

NUMBER OF ROD AND GUN LICENCES			
2010	2015	2016	2017
12 7252	102 208	97 132	86 462

Source: Directorate-General for Natural Heritage and Regional Ministry of the Environment and Land-Use Planning

NUMBER OF WILD ANIMALS IN WILDLIFE SHELTERS			
2010	2015	2016	2017
1 874	2 291	2 227	2 714

Source: Directorate-General for Natural Heritage and Regional Ministry of the Environment and Land-Use Planning

AGRICULTURE

ORGANIC CROP AND LIVESTOCK FARMING. 2017	
Organic area (ha)	No of organic livestock farms
31 916	368

Source: 2017 annual report by Galicia's Regulatory Council on Organic Farming

WASTE

WASTE PER CAPITA (kg/capita)						
Year	Household/municipal waste	Separately collected paper/cardboard:	Separately collected glass	Separately collected packaging	Construction and demolition waste	Industrial waste
2016	410.57*	11.15*	15.99*	8.56*	203.62**	1131.11**

Source: *Follow-up report on Galicia's Urban Waste Management Plan. 2017 data.
**Follow-up report on Galicia's Industrial Waste Management Plan. 2016 data)

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m^3) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
66.7	28.2	5.1	0.0	0.0	39
PM10: annual mean concentration (µg/m^3) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
27.0	64.9	5.4	2.7	0.0	37
PM2.5: annual mean concentration (µg/m^3) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
0.0	80.0	20.0	0.0	0.0	20
O_3: maximum daily levels of eight-hour means (µg/m^3). 2016					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
10.7	89.3	0.0			28

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Galicia	7.148	7.097	7.065	7.184	7.185	7.217	7.311	7.332	2.57
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data (Regional Government of Galicia).

BUSINESS AND SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSES TO REQUESTS FOR INFORMATION			
Requests for information (2017)			
Total	Answered within <1 month	Answered within >1 month	Not answered
3 254	3 129	98	27

Source: Regional Ministry of the Environment and Land-Use Planning. Regional Government of Galicia

NUMBER OF FACILITIES HOLDING ENVIRONMENTAL LICENCES			
2010	2015	2016	2017
233	263	275	278

Source: Environmental licence register. Regional Government of Galicia

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS. 2017	
No of organisations registered under EMAS	No of products awarded ecolabels
108	29

Source: Regional Ministry of the Environment and Land-Use Planning. Regional Government of Galicia

PUBLICATIONS ON THE ENVIRONMENT

- Guìa a Pesca Fluvial en Galicia (free). Annual
- Guía a Caza en Galcia (free). Annual
- Libro Lei Caza Galicia (free)
- Practica la pesca de forma responsable (free)
- Métodos para prevenir daños de lobo al ganado (free)
- Informe climatolóxico. 2017. In Galician
- Informe anual de calidade do aire de Galicia. 2016. In Galician
- Informe de metais en Galicia. 2017. In Galician
- Informe de hidrocarburos aromáticos policíclicos. 2017. In Galician
- Climatología del ozono estratosférico y de la radiación ultravioleta de Galicia. In Spanish

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- Sistema de Información Ambiental de Galicia (SIAM) http://siam.xunta.gal/portada
- Sistema de Información de Residuos de Galicia (SIRGA) http://sirga.xunta.gal/
- Información geográfica de Galicia http://mapas.xunta.gal/portada
- Red de Parques Naturales de Galicia http://galicianaturaleunica.xunta.gal/es
- Illas Atlánticas National Park https://www.parquenacionalillasatlanticas.com/index.php?lang=es
- Visit to Playa de As Catedrais https://ascatedrais.xunta.gal/monatr/inicio?lang=es

RIOJA

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 3/1982 of 9 June 1982 on the Statute of Autonomy of Rioja
Area (INE): 5 045 km²
Capital: Logroño **Provinces:** 1 **Municipalities:** 174
Population (2017): 315 381 inhabitants
Population density (2017): 62.5 inhab/km²
Population change (%) 2000–2017: 19.4 / **2016–2017:** -0.1

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Rioja	4.7	24.1	4.8	66.4
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Rioja	5.5	26.0	5.4	53.6
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
5.8	14.2	15.4	13.6	12.0
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Rioja	15 043	103.55	1.4
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
59.4	59.9	59.4	59.2	59.0
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
21.1	21.5	17.8	12.9
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

BREAKDOWN BY LAND USE (%). 2017					
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Rioja	2.2	0.0	-0.1	0.6	0.0
Spain	0.9	-0.2	0.1	1.7	0.0
Source: Compiled in-house from IGN data					

NUMBER OF CONTAMINATED SITES. 2017		
Scope	Declared	Decontaminated / Remediated
Rioja	0	0
Source: Directorate-General for Environmental Quality and Water		

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Rioja	258 596.8	0.0	258 596.8	168 264.7	0.0	168 264.7	167 545.8	0.0	167 545.8
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Rioja	119 822.1	0.0	119 822.1	86.1	0.0	86.1	0.0	0.0	0.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017							
Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Rioja	64	17	240.6	88.9	160.1	249.0	14.2
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5
Source: Directorate-General for the Environment (for the autonomous community) and MITECO (for Spain)							

NUMBER OF ROD AND GUN LICENCES			
2010	2015	2016	2017
Rod: 10 336 Gun: 13 167	Rod: 8 657 Gun: 10 910	Rod: 8 021 Gun: 10 682	Rod: 7 361 Gun: 10 618

Source: Directorate-General for the Environment

NUMBER OF WILD ANIMALS IN WILDLIFE SHELTERS			
2010	2015	2016	2017
288	407	433	499

Source: Directorate-General for the Environment

AGRICULTURE

ORGANIC CROP AND LIVESTOCK FARMING. 2017	
Organic area (ha)	No of organic livestock farms
4 903	5

Source: Directorate-General for Agriculture and Livestock Farming

WASTE

WASTE PER CAPITA (kg/capita)						
Year	Household/municipal waste	Separately collected paper/cardboard:	Separately collected glass	Separately collected packaging	Construction and demolition waste	Industrial waste
2016	339.1	25.3	27.2	15.2	494.2	339.1

Source: Directorate-General for Environmental Quality and Water

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m³) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
100.0	0.0	0.0	0.0	0.0	5
PM10: annual mean concentration (µg/m³) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
0.0	80.0	20.0	0.0	0.0	5
PM2.5: annual mean concentration (µg/m³) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
0.0	100.0	0.0	0.0	0.0	5
O_3: maximum daily levels of eight-hour means (µg/m³). 2016					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
60.0	40.0	0.0			5

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Rioja	5.549	5.412	5.355	5.292	5.299	5.441	5.524	5.434	-2.06
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

BUSINESS AND SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSES TO REQUESTS FOR INFORMATION			
Requests for information (2017)			
Total	Answered within <1 month	Answered within >1 month	Not answered
269	-	-	-

Source: Directorate-General for the Environment

NUMBER OF FACILITIES HOLDING ENVIRONMENTAL LICENCES			
2010	2015	2016	2017
48	51	53	54

Source: Directorate-General for Environmental Quality and Water

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS. 2017	
No of organisations registered under EMAS	No of products awarded ecolabels
5	1

Source: Directorate-General for Environmental Quality and Water

PUBLICATIONS ON THE ENVIRONMENT

- Páginas de Información Ambiental
- Guías de la Biodiversidad de La Rioja (Regional Government of Rioja, 7 issues published)
- Mapa de los bosques de La Rioja (Regional Government of Rioja)
- Guías de campo de los espacios protegidos de La Rioja (Regional Government of Rioja, 2 issues published)

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- http://www.larioja.org/medio-ambiente/es
- http://www.larioja.org/care
- http://www.larioja.org/estadistica
- http://www.iderioja.larioja.org

MADRID

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 3/1983 of 25 February 1983 on the Statute of Autonomy of the Autonomous Community of Madrid
Area (INE): 8 028 km²
Capital: Madrid **Provinces:** 1 **Municipalities:** 179
Population (2017): 6 507 184 inhabitants
Population density (2017): 810.6 inhab/km²
Population change (%) 2000–2017: 25.0 / **2016–2017:** 0.6

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Madrid	0.1	8.8	5.1	86.0
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Madrid	0.1	9.7	4.1	76.7
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
6.2	15.8	17.1	15.7	13.3
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Madrid	18 291	125.91	1.7
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
65.0	66.1	64.6	63.7	62.9
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
18.3	15.6	14.6	13.9
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

BREAKDOWN BY LAND USE (%). 2017					
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies	Total
Madrid	0.6	-0.6	0.2	0.2	0.0
Spain	0.9	-0.2	0.1	1.7	0.0
Source: Compiled in-house from IGN data					

NUMBER OF CONTAMINATED SITES. 2017		
Scope	Declared	Decontaminated / Remediated
Madrid	30	27

Source: Department of Waste Management and Planning. Directorate-General for the Environment and Sustainability. Data published in the Regional System of Environmental Indicators of the Autonomous Community of Madrid (Indicator SU-01, contaminated land) and in the respective annual environmental diagnoses conducted by the Regional Government of Madrid.

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Madrid	330 241.7	0.0	330 241.7	120 892.1	0.0	120 892.1	319 478.6	0.0	319 478.6
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Madrid	62 014.0	0.0	62 014.0	487.6	0.0	487.6	0.0	0.0	0.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017									
Scope	No of fires		Forest area (ha)					Total affected forest area forming part of a protected area	
			Total (wooded + herbaceous)	Wooded			Herbaceous*		
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous	ha	Area as % of total affected forest area
Madrid	293	51	258.7	10.3	47.1	57.4	201.4	49.2	19.0
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5	-	-

Source: Forest Fire Service. Autonomous Community of Madrid Fire Brigade. Directorate-General for Emergencies. Office of the Deputy President, Deputy Regional Ministry of the Office of the President and Speaker of the Government. The data not include protected areas in the Natura 2000 network or biosphere reserves. MITECO (for Spain).

NUMBER OF ROD AND GUN LICENCES			
2010	2015	2016	2017
85 684	89 081	91 311	91 795

Source: Department for the Conservation of Flora and Fauna. Directorate-General for the Environment and Sustainability. Regional Ministry of the Environment and Land-Use Planning. No of current licences at the end of each year. Data published in the Regional System of Environmental Indicators (Indicator MN-03, gun licences; Indicator MN-04, rod licences) and in the respective annual environmental diagnoses conducted by the Regional Government of Madrid.

NUMBER OF WILD ANIMALS IN WILDLIFE SHELTERS			
2010	2015	2016	2017
1 166	4 787	3 290	3 062

Source: Department for the Conservation of Flora and Fauna. Directorate-General for the Environment and Sustainability. Regional Ministry of the Environment and Land-Use Planning. Data published in the Regional System of Environmental Indicators (Indicator MN-08 CRAS Madrid) and in the respective annual environmental diagnoses conducted by the Regional Government of Madrid.

AGRICULTURE

ORGANIC CROP AND LIVESTOCK FARMING. 2017	
Organic area (ha)	No of organic livestock farms
10 059	19

Source: Department for the Agri-food Industry. Directorate-General for Agriculture, Livestock Farming and Food. Regional Ministry of the Environment and Land-Use Planning. Data published in the Regional System of Environmental Indicators (Indicator MN-09, organic production) and in the respective annual environmental diagnoses conducted by the Regional Government of Madrid.

WASTE

WASTE PER CAPITA (kg/capita)						
Year	Household/municipal waste	Separately collected paper/cardboard:	Separately collected glass	Separately collected packaging	Construction and demolition waste	Industrial waste
2016	428.5	13.2	12.6	20.4	527.9	29.4

Source: Department of Infrastructure. Directorate-General for the Environment and Sustainability. Regional Ministry of the Environment and Land-Use Planning. For industrial waste: Department of Waste Management and Planning. Directorate-General for the Environment and Sustainability. Regional Ministry of the Environment and Land-Use Planning. The data used correspond to hazardous waste treated in the Autonomous Community of Madrid, taken from the annual reports filed by waste management organisations.

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m³) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
10.6	23.4	10.6	34.0	21.3	47
PM10: annual mean concentration (µg/m³) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
0.0	65.5	34.5	0.0	0.0	29
PM2.5: annual mean concentration (µg/m³) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
0.0	94.7	5.3	0.0	0.0	19
O_3: maximum daily levels of eight-hour means (µg/m³). 2016					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
0.0	37.8	62.2			37

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Madrid	5.072	4.862	4.771	4.574	4.407	4.486	4.497	4.421	-12.84
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

BUSINESS AND SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSES TO REQUESTS FOR INFORMATION			
Requests for information (2017)			
Total	Answered within <1 month	Answered within >1 month	Not answered
15 350	15 335	15	0

Source: Department of Environmental Information and Web Content. Technical Secretariat-General. Regional Ministry of the Environment and Land-Use Planning.
Data published in the Regional System of Environmental Indicators (Indicator IA-04, access to environmental information) and in the report on requests for environmental information published on the regional government website and submitted to the MITECO for inclusion in the survey on the practical application of Law 27/2006 of 18 July 2006 on environmental information.

NUMBER OF FACILITIES HOLDING ENVIRONMENTAL LICENCES			
2010	2015	2016	2017
138	173	165	166

Source: Department of Integrated Pollution Control. Directorate-General for the Environment and Sustainability. Regional Ministry of the Environment and Land-Use Planning.
Data published in the Regional System of Environmental Indicators (Indicator IA-08, environmental licences) and in the respective annual environmental diagnoses conducted by the Regional Government of Madrid.

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS. 2017	
No of organisations registered under EMAS	No of products awarded ecolabels
132	75

Source: Department of Integrated Pollution Control. Directorate-General for the Environment and Sustainability. Regional Ministry of the Environment and Land-Use Planning.
Data published in the Regional System of Environmental Indicators (Indicator IA-10, ecolabels awarded) and in the respective annual environmental diagnoses conducted by the Regional Government of Madrid.

PUBLICATIONS ON THE ENVIRONMENT

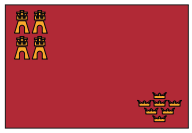
- Diagnóstico ambiental de la Comunidad de Madrid 2017: http://www.comunidad.madrid/publicacion/1354694788991
- Normas de caza Madrid 2017–2018 (leaflet)
- Normas de pesca Madrid 2017 (leaflet)

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- www.comunidad.madrid
- http://www.madrid.org/legislacionambiental
- http://www.madrid.org/calidaddelaire
- https://idem.madrid.org/visor/?v=ambiental
- Regional System of Environmental Indicators: http://www.comunidad.madrid/servicios/urbanismo-medio-ambiente/indicadores-ambientales
- Environmental diagnoses of the Autonomous Community of Madrid: http://www.comunidad.madrid/publicamadrid/coleccion/%22Informes%20sobre%20el%20estado%20del%20medio%20ambiente%22

RELEVANT DATA OR INFORMATION

- Declaration of the Cuencas de los ríos Albeche y Cofio district as a Special Area of Conservation and approval of its Management Plan, and declaration of the Encinares del río Alberche y río Cofio district as a Special Protection Area for Wild Birds (Decree 26/2017 of 14 March 2017 of the Council of Ministers, amended by Decree 132/2017 of 31 October 2017 on the use of airspace and traffic).
- Declaration of the Hayedo de Montejo district as a UNESCO World Heritage Site as part of the European Beech Forest joint application submitted by ten European countries (denominated Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe): Spain, Albania, Austria, Belgium, Bulgaria, Croatia, Italy, Romania, Slovenia and Ukraine. Approved in Kraków at the 41st session of the UNESCO World Heritage Committee.
- Declaration of two Fluvial Nature Reserves: Río Manzanares and Ríos Riato y Puebla (Decision of the Directorate-General for Water of 24 February 2017).
- Creation of the position of Regional Government of Madrid Commissioner for Climate Change (Decree 36/2017 of the Council of Ministers of 28 March 2017).
- Approval of the Framework Action Protocol for episodes of high NO_2 pollution in the Autonomous Community of Madrid (Decree 140/2017 of the Council of Ministers of 21 November 2017).
- Approval of the Special Plan for Emergency Civil Protection against Forest Fires in the Autonomous Community of Madrid (Decree 59/2017 of the Council of Ministers of 6 June 2017, amended by the Decision of 28 July 2017).
- Approval of the Strategic Noise Maps for lines 2 and 3 of the light metro system; lines 5, 9B and 10 of the Madrid metro system; and the overground sections of line 1 of the light metro system (Decisions of 1 December 2017).
- Regulation of public use of the Sierra de Guadarrama National Park by means of restriction of bathing in the upper reach of the River Manzanares (Manzanares el Real) and of vehicle access to the La Pedriza landscape (Decision of the Director-General for the Environment at the Regional Ministry of the Environment, Local Government and Land-Use Planning of 13 July 2017).
- Approval of the 2017–2020 Environmental Inspection Plan of the Autonomous Community of Madrid (Order 1248/2017 of the Regional Ministry of the Environment, Local Government and Land-Use Planning of 28 June 2017).
- Commemoration of the 20th anniversary of the Network of Environmental Education Centres of the Autonomous Community of Madrid. Over 5 million people have used the services available, participated in the activities or visited the centres.
- Demarcation and publication of the protected areas in the Autonomous Community of Madrid subject to the measures to protect birds against collision with and electrocution by high-voltage overhead powerlines (Decision of the Directorate-General for the Environment of 6 July 2017).
- Submission to public consultation of the draft Regulation on Drove-Roads in the Autonomous Community of Madrid and of the draft Decree on the Master Plan on Use and Management of the Sierra de Guadarrama National Park.
- Approval of subsidies for non-profit-making bodies to finance environmental activities and projects in the Autonomous Community of Madrid (Order 2825/2017 of the Regional Ministry of the Environment, Local Government and Land-Use Planning of 21 September 2017).
- Approval of investment aid to replace fossil-fuel boilers with forest-biomass boilers (Order 1219/2017 of the Regional Ministry of the Environment, Local Government and Land-Use Planning of 5 June 2017).
- Draft regional law amending Regional Law 9/1995 of 28 March 1995 on land-use policy and planning measures in the Autonomous Community of Madrid.
- Draft regional law on land-use planning.



MURCIA

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 4/1982 of 9 June 1982 on the Statute of Autonomy of Murcia
Area (INE): 11 314 km²
Mean length of coastline: 271.6 km (2.6 % of the Spanish total)
Capital: Murcia **Provinces:** 1 **Municipalities:** 45
Population (2017): 1 470 273 inhabitants
Population density (2017): 130 inhab/km²
Population change (%) 2000–2017: 27.9 / **2016–2017:** 0.4

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Murcia	13.9	12.4	5.8	68.0
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Murcia	5.1	17.9	5.6	62.0
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
7.5	22.9	24.6	19.8	18.0
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Murcia	11 631	80.1	2.8
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
60.6	61.9	59.5	59.1	59.5
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
24.1	23.6	26.4	23.1
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

BREAKDOWN BY LAND USE (%). 2016				
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies
Murcia	1.4	-0.2	0.0	2.2
Spain	0.9	-0.2	0.1	1.7
Source: Compiled in-house from IGN data				

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Murcia	276 955.7	27 070.9	304 026.6	62 104.3	122.5	62 226.8	266 747.6	27 070.0	293 817.6
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Murcia	0.0	0.0	0.0	1 686.2	13 500.4	15 186.6	1 774.4	25 728.6	27 503.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017							
Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Murcia	116	16	166.34	141.50	19.80	161.30	5.04
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5
Source: MITECO							

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m³) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
12.5	62.5	12.5	12.5	0.0	8
PM10: annual mean concentration (µg/m³) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
0.0	50.0	37.5	12.5	0.0	8
PM2.5: annual mean concentration (µg/m³) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
0.0	0.0	100.0	0.0	0.0	1
O_3: maximum daily levels of eight-hour means (µg/m³). 2015					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
14.3	71.4	14.3			7

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Murcia	5.697	5.663	5.838	5.648	5.774	6.079	6.215	6.393	12.22
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

NUMBER OF ROD AND GUN LICENCES. 2015				
Scope	Gun	%	Rod	%
Murcia	9 943	1.2	1 954	0.3
Spain	823 453	100.0	577 636	100.0

Source: MITECO

PUBLICATIONS ON THE ENVIRONMENT

- Documents published by the Directorate-General for the Environment

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- https://www.carm.es/web/pagina?IDCONTENIDO=64&IDTIPO=140&RASTRO=c$m

NAVARRE

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 13/82 of 10 August 1982 on reincorporation and revision of the legislature of Navarre
Area (INE): 10 390 km²
Capital: Pamplona **Provinces:** 1 **Municipalities:** 272
Population (2017): 643 234 inhabitants
Population density (2017): 61.9 inhab/km²
Population change (%) 2000–2017: 18.3 / **2016–2017:** 0.4

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Navarre	4.0	26.9	5.3	63.8
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Navarre	3.1	29.8	4.9	52.9
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
4.7	11.9	13.8	12.5	10.2
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Navarre	17 904	123.3	2.3
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
61.3	60.7	58.8	58.6	59.1
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
11.8	10.8	13.4	11.3
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

BREAKDOWN BY LAND USE (%). 2017				
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies
Navarre	-0.1	0.1	0.0	0.7
Spain	0.9	-0.2	0.1	1.7
Source: Compiled in-house from IGN data				

NUMBER OF CONTAMINATED SITES. 2017		
Scope	Declared	Decontaminated / Remediated
Navarre	7	7
All remediated sites have adopted the option provided under Article 38 of Law 22/2011. Source: Regional Government of Navarre. Waste Section		

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Navarre	289 230.6	0.0	289 230.6	85 568.5	0.0	85 568.5	280 950.0	0.0	280 950.0
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Navarre	39 285.3	0.0	39 285.3	315.8	0.0	315.8	0.0	0.0	0.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017									
Scope	No of fires		Forest area (ha)					Total affected forest area forming part of a protected area	
			Total (wooded + herbaceous)	Wooded			Herbaceous*		
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous	ha	Area as % of total affected forest area
Navarre	149	157	1 220.3	219.8	518.3	738.1	482.2	575.1	47.1
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5	-	-

Source: MITECO. The data on total affected forest area forming part of protected areas are provided by the Regional Government of Navarre's Natural Environment Service.

NUMBER OF ROD AND GUN LICENCES				
Licence type	2010	2015	2016	2017
Gun	25 631	23 910	23 698	20 876
Rod	20 912	18 027	16 806	17 013

Source: Department of Game Management and Department of Fishery Management. Regional Government of Navarre

NUMBER OF WILD ANIMALS IN WILDLIFE SHELTERS			
2010	2015	2016	2017
679	555*	728**	591***

* 555 animals in total, of which 436 are catalogued species, 32 are game species and 87 are domestic or alien species
** 728 animals in total, of which 425 are catalogued species, 74 are game species, 41 are domestic or alien species and 188 are pest or invasive alien species
*** 591 animals in total, of which 429 are catalogued species, 43 are game species, 47 are pest or invasive alien species and 72 are domestic or alien species
Source: Natural Environment Service. Regional Government of Navarre

AGRICULTURE

ORGANIC CROP AND LIVESTOCK FARMING. 2017	
Organic area (ha)	No of organic livestock farms
48 024.5	92

Source: Navarre Council for Organic Production

WASTE

WASTE PER CAPITA (kg/capita)						
Year	Household/municipal waste	Separately collected paper/cardboard:	Separately collected glass	Separately collected packaging	Construction and demolition waste	Industrial waste
2016	426	40	25	21	448	1 289

Source: Regional Government of Navarre

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m³) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
50.0	50.0	0.0	0.0	0.0	8
PM10: annual mean concentration (µg/m³) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
12.5	87.5	0.0	0.0	0.0	8
PM2.5: annual mean concentration (µg/m³) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
0.0	100.0	0.0	0.0	0.0	1
O_3: maximum daily levels of eight-hour means (µg/m³). 2015					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
37.5	62.5	0.0			8

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Navarre	7.720	7.704	7.445	7.411	7.460	7.562	7.752	7.861	1.83
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

BUSINESS AND SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSES TO REQUESTS FOR INFORMATION			
Requests for information (2017)			
Total	Answered within <1 month	Answered within >1 month	Not answered
171	72	82	17

Source: Directorate-General for the Environment and Land-Use Planning. Regional Government of Navarre

NUMBER OF FACILITIES HOLDING ENVIRONMENTAL LICENCES			
2010	2015	2016	2017
235	252	263	267

The data refer to the number of current environmental licences at 31 December each year. The figure shows the number of environmental licences awarded in accordance with both national law (Law 16/2002) and regional law (Regional Law 4/2005).
Source: Circular Economy and Water Service. Regional Government of Navarre

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS. 2017	
No of organisations registered under EMAS	No of products awarded ecolabels
5	2 181

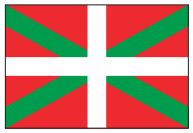
Source: Foodstuffs certified by CPAEN. Department for the Promotion of Organic Farming and Cross-Cutting Actions in Agriculture

PUBLICATIONS ON THE ENVIRONMENT

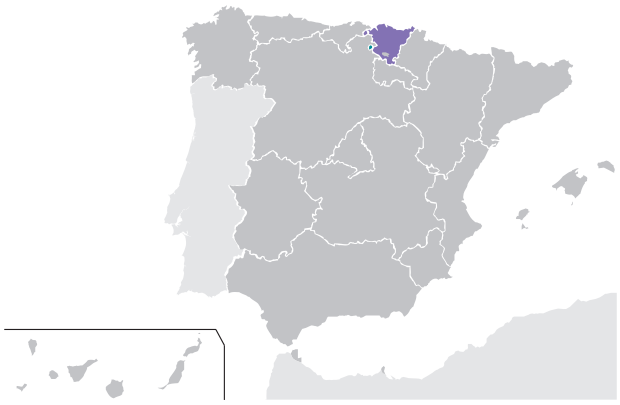
- Department e-newsletter: https://boletindrmaal.navarra.es/index.php
- Environmental magazine: http://www.navarra.es/home_es/Temas/Medio+Ambiente/Disfruta+y+aprende/Coyuntura+Ambiental+de+Navarra.htm#header2
- Report on the state of the environment: http://www.navarra.es/home_es/Temas/Medio+Ambiente/Informe+de+estado/?NRMODE=Published
- Waste newsletter: http://www.navarra.es/home_es/Temas/Medio+Ambiente/Residuos/Boletin+de+residuos.htm
- Miscellaneous publications: https://www.navarra.es/home_es/Temas/Medio+Ambiente/Disfruta+y+aprende/Publicaciones.htm

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- Environment website (*): http://www.navarra.es/home_es/Temas/Medio+Ambiente/
- Department of Rural Development, Environment and Local Government website: http://www.navarra.es/home_es/Gobierno+de+Navarra/Departamento+Desarrollo+Rural+Medio+Ambiente+Administracion+Local/
- Rural matters website: http://www.navarra.es/home_es/Temas/Ambito+rural/
- Protected areas website: http://espaciosnaturales.navarra.es/
- Environmental management website: https://gan-nik.es/



BASQUE COUNTRY



GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 3/1979 of 18 December 1979 on the Statute of Autonomy of the Basque Country
Area (INE): 7 230 km²
Mean length of coastline: 500.7 km (4.9 % of the Spanish total)
Capital: Vitoria **Provinces:** 3 **Municipalities:** 251
Population (2017): 2 194 158 inhabitants
Population density (2017): 303.5 inhab/km²
Population change (%) 2000–2017: 4.6 / **2016–2017:** 0.2

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Basque Country	1.4	22.9	5.3	70.3
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Basque Country	0.7	27.1	5.4	57.5
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
6.2	10.7	14.8	12.6	11.3
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Basque Country	18 914	130.2	0.9
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
58.0	58.2	56.7	57.0	56.2
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
9.4	9.7	7.9	7.0
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

BREAKDOWN BY LAND USE (%). 2017				
Scope	Developed	Agricultural	Forest and natural areas	Wetlands and water bodies
Basque Country	1.3	-0.3	0.0	0.1
Spain	0.9	-0.2	0.1	1.7
Source: Compiled in-house from IGN data				

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Basque Country	171 245.1	5 174.7	176 419.8	101 359.2	4 138.4	105 497.6	150 391.5	1 443.3	151 834.7
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Basque Country	21 774.8	269.2	22 044.0	1 635.8	227.4	1 863.2	0.0	0.0	0.0
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017							
Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous*
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Basque Country	61	18	130.92	19.03	75.22	94.25	36.67
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5

Source: MITECO

NUMBER OF ROD AND GUN LICENCES			
2010	2015	2016	2017
43 536	36 466	-	-

Source: Statistics on rod and gun licences in the Basque Country. Provincial Councils of Araba, Bizkaia and Gipuzkoa

AGRICULTURE

ORGANIC CROP AND LIVESTOCK FARMING. 2017	
Organic area (ha)	No of organic livestock farms
4 244	117

Source: ENEEK (Euskadiko Nekazaritza eta Elikadura Ekologikoaren Kontseilua), 2017

WASTE

WASTE PER CAPITA (kg/capita)						
Year	Household/municipal waste	Separately collected paper/cardboard:	Separately collected glass	Separately collected packaging	Construction and demolition waste	Industrial waste
2016	514.0	73.0	26.8	18.3	571.4	1 643.7

Source: Basque Regional Government. Department of the Environment, Land-Use Planning and Housing. Statistics on urban waste in the Basque Country. Inventory of construction and demolition waste. Statistics on hazardous and non-hazardous waste in the Basque Country.

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m^3) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
25.9	51.9	22.2	0.0	0.0	27
PM10: annual mean concentration (µg/m^3) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
4.2	87.5	8.3	0.0	0.0	24
PM2.5: annual mean concentration (µg/m^3) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
22.2	77.8	0.0	0.0	0.0	9
O_3: maximum daily levels of eight-hour means (µg/m^3). 2015					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
30.8	61.5	7.7			13

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Basque Country	8.477	8.101	7.601	7.554	7.671	7.755	7.420	7.540	-11.05
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSES TO REQUESTS FOR INFORMATION			
Requests for information (2017)			
Total	Answered within <1 month	Answered within >1 month	Not answered
	5 837		

Source: Basque Regional Government. Department of the Environment, Land-Use Planning and Housing.

NUMBER OF FACILITIES HOLDING ENVIRONMENTAL LICENCES			
2010	2015	2016	2017
227	268	273	275

Source: Basque Regional Government. Department of the Environment, Land-Use Planning and Housing.

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS. 2017	
No of organisations registered under EMAS	No of products awarded ecolabels
88	19 products + 25 tourist accommodation services

Source: Basque Regional Government. Department of the Environment, Land-Use Planning and Housing.

PUBLICATIONS ON THE ENVIRONMENT

- Programa Marco Ambiental 2020 http://www.euskadi.eus/documentacion/2014/programa-marco-ambiental/web01-a2inguru/es/
- Perfil Ambiental de Euskadi 2017 Residuos http://www.euskadi.eus/web01-a2inguru/es/contenidos/documentacion/residuos2017/es_def/index.shtml

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- http://www.euskadi.eus/gobierno-vasco/medio-ambiente/
- http://www.euskadi.eus/documentacion/2017/medio-ambiente-en-la-comunidad-autonoma-del-pais-vasco/web01-s2ing/es/

OTHER RELEVANT DATA INFORMATION ON THE ENVIRONMENT

- LurData. GIS statistics. http://www.eustat.eus/estad/gis_c.html
- INGURUNET: new environmental management information system. http://www.euskadi.eus/proyecto/servicio-de-diseno-y-desarrollo-de-un-nuevo-sistema-de-informacion-de-gestion-medioambiental/web01-a2inguru/es/

VALENCIA

GEOGRAPHICAL AND ADMINISTRATIVE DATA

Statute of Autonomy: Organic Law 1/2006 of 10 April 2006 on reform of Organic Law 5/1982 of 1 July 1982 on the Statute of Autonomy of Valencia
Area (INE): 23 255 km²
Mean length of coastline: 552 km (5.4 % of the Spanish total)
Capital: Valencia **Provinces:** 3 **Municipalities:** 542
Population (2017): 4 941 509 inhabitants
Population density (2017): 212.5 inhab/km²
Population change (%) 2000–2017: 19.9 / **2016–2017:** -0.4

SOCIOECONOMIC DATA

Source: Ministry of Education and Vocational Training (for school dropout rate) and INE for all other variables. Note: as percentages are rounded to one decimal place, they may not add up to 100 per cent.

EMPLOYMENT BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Valencia	2.9	18.6	6.2	72.3
Spain	4.4	14.1	6.0	75.6

GVA BY SECTOR (%). 2017				
Scope	Agriculture	Industry	Construction	Services
Valencia	2.2	18.0	6.1	64.4
Spain	2.6	16.4	5.2	67.2

UNEMPLOYMENT RATE				
2007	2010	2015	2016	2017
8.7	22.9	22.8	20.6	18.2
National average (2017): 17.2				

GROSS DISPOSABLE HOUSEHOLD INCOME. 2015			
Scope	€/capita	Spain=100	Change 2013–2014 (%)
Valencia	12 933	89.0	2.4
Spain	14 527	100	2.3

EMPLOYMENT RATE				
2007	2010	2015	2016	2017
60.0	60.1	59.1	59.4	59.1
National average (2017): 58.8				

SCHOOL/TRAINING DROPOUT RATE			
2014	2015	2016	2017
23.4	21.4	20.2	20.3
National average (2017): 18.3			

ENVIRONMENTAL DATA

SOIL

BREAKDOWN BY LAND USE (%). 2017				
Scope	Water bodies	Developed	Agricultural	Forest and natural areas
Valencia	0.7	0.0	-0.1	0.4
Spain	0.9	-0.2	0.1	1.7
Source: Compiled in-house from IGN data				

NUMBER OF CONTAMINATED SITES. 2017		
Scope	Declared	Decontaminated / Remediated
Valencia	1	8
Source: Inventory of Contaminated Land. Autonomous Community of Valencia		

NATURAL ENVIRONMENT

PROTECTED AREA. 2017									
Scope	Total protected area (ha)			Protected area (PA)			Protected area (Natura 2000)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Valencia	924 200.4	18 227.6	942 428.0	244 632.0	9 754.9	254 386.9	879 794.2	17 873.4	897 667.6
Spain	16 604 375.1	8 633 686.5	25 238 061.5	7 383 423.7	511 446.6	7 894 870.3	13 833 134.8	8 534 719.6	22 367 854.3
Scope	OTHER INTERNATIONAL CATEGORIES								
	Protected area (MaB)			Protected area (RAMSAR)			Protected area (SPAMI)		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Valencia	0.0	0.0	0.0	33 013.8	168.3	33 182.1	19.4	12 286.5	12 305.9
Spain	5 550 107.6	491 778.5	6 041 886.1	282 694.0	25 605.8	308 299.7	51 857.9	96 625.7	148 483.6
Source: MITECO									

FOREST FIRES. 2017							
Scope	No of fires		Forest area (ha)				
			Total (wooded + herbaceous)	Wooded			Herbaceous*
	Outbreaks (<1 ha)	Fires (>1 ha)		Woodland	Scrub	Total wooded	Total herbaceous
Valencia	315	33	1 898.18	1 205.97	692.21	1 898.18	0.00
Spain	8 705	5 088	178 233.9	6 683 902.0	100 063.5	166 902.5	11 331.5

Source: MITECO

NUMBER OF ROD AND GUN LICENCES			
2010	2015	2016	2017
73 411	12 381*	58 367	64 005

* Solely rod licences.
Source: Hunting and Fishing Service. Directorate-General for the Natural Environment and Environmental Assessment. Regional Government of Valencia.

NUMBER OF WILD ANIMALS IN WILDLIFE SHELTERS			
2010	2015	2016	2017
6 692	7 196	8 485	10 018

Source: Wildlife Service. Directorate-General for the Natural Environment and Environmental Assessment. Regional Government of Valencia.

AGRICULTURE

ORGANIC CROP AND LIVESTOCK FARMING. 2016	
Organic area (ha)	No of organic livestock farms
96 477	37

Source: Autonomous Community of Valencia Organic Farming Committee.

AIR: QUALITY FOR PROTECTION OF HUMAN HEALTH

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES					
NO_2: annual mean concentration (µg/m³) 2016					
<=13 (<=LAT/2)	13–26 (LAT/2–LAT)	26–32 (LAT–UAT)	32–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
66.7	25.9	5.6	0.0	1.9	54
PM10: annual mean concentration (µg/m³) 2016					
<=10 (<=LAT/2)	10–20 (LAT/2–LAT)	20–28 (LAT–UAT)	28–40 (UAT–ALV)	>40 (>ALV)	No of stations (2016)
22.4	55.1	22.4	0.0	0.0	49
PM2.5: annual mean concentration (µg/m³) 2016					
<=6 (<=LAT/2)	6–12 (LAT/2–UAT)	12–17 (LAT–UAT)	17–25 (UAT–ALV)	>25 (>ALV)	No of stations (2016)
12.8	76.9	10.3	0.0	0.0	39
O_3: maximum daily levels of eight-hour means (µg/m³). 2015					
<=120 (<=LTT)	(LTT–TV)	>120 (average 25 exceedances over 3 years) (>TV)			No of stations (2016)
30.2	52.8	17.0			53

Note: LAT = Lower Assessment Threshold; UAT = Upper Assessment Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value.
Source: MITECO

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)									
Scope	2010	2011	2012	2013	2014	2015	2016	2017	2010–2017 (%)
Valencia	5.453	5.320	5.162	5.064	5.172	5.370	5.441	5.469	0.29
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	5.758	-1.80

Source: Compiled in-house from REE and INE data.

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSES TO REQUESTS FOR INFORMATION			
Requests for information (2017)			
Total	Answered within <1 month	Answered within >1 month	Not answered
1 035	860	156	19

Source: Environmental Information and Documentation Centre. Regional Government of Valencia.

NUMBER OF FACILITIES HOLDING ENVIRONMENTAL LICENCES			
2010	2015	2016	2017
539	597	600	603

Source: Environmental licence database. Regional Government of Valencia.

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS. 2017	
No of organisations registered under EMAS	No of products awarded ecolabels
44**	15 447*

*Data as at March 2018
**The data provided by the Directorate-General for Climate Change and Environmental Quality are different to the data in the original file
Source: Directorate-General for Climate Change and Environmental Quality.

PUBLICATIONS ON THE ENVIRONMENT

- Manual d'identificació dels hàbitats protegits a la Comunitat Valenciana (Decree 70/2009). Valencia. 2016.

LINKS TO RECOMMENDED WEBSITES ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY/CITY

- www.agroambient.gva.es
- http://www.agroambient.gva.es/es/web/cidam
- http://www.parquesnaturales.gva.es/
- www.ceam.es
- http://www.bdb.gva.es/es
- http://www.agroambient.gva.es/es/web/ceacv

OTHER RELEVANT DATA OR INFORMATION

- 1. Decree 10/2017 of 27 January 2017 of the Council declaring as Special Areas of Conservation the Sierra de Martés y el Ave, Muela de Cortes y el Caroche, Valle de Ayora y Sierra del Boquerón, Sierra de Enguera, and Sierra de Malacara Sites of Community Importance, modifying the boundary of the Sierras de Martés-Muela de Cortes Special Protection Area for wild birds and passing the regulations governing the management of those areas and of the Sierra de Malacara Special Protection Area for wild birds.
- 2. Decree 49/2017 of 31 March 2017 of the Council amending Decree 97/2010 of 11 June 2010 of the Council regulating the right to access to environmental information and public participation in environmental matters.
- 3. Decree 60/2017 of 5 May 2017 of the Council amending the catalogue of public domain and public utility woodland in the municipalities of Azteneta d'Albaida and Carrícola in the province of Valencia.
- 4. Decree 75/2017, of 9 June 2017 creating the Register of Forestry Cooperatives and Enterprises in Valencia.
- 5. Decree 76/2017 of 9 June 2017 of the Council regulating authorisation of recreational subaquatic activities in the marine fishery reserves of Valencia.
- 6. Decree 116/2017 of 1 September 2017 of the Council declaring as Special Areas of Conservation the Alto Turia (ES5232006), Sabinar de Alpuente (ES5233008) and Sierra del Negrete (ES5233009) Sites of Community Interest and passing the regulations governing management of those Special Areas of Conservation and the Alto Turia and Sierra del Negrete (ES0000449) Special Protection Areas for wild birds.
- 7. Decree 125/2017 of 22 September 2017 of the Council modifying the catalogue of public domain and public utility woodland in the municipalities of Ayora and Teresa de Cofrentes in the province of Valencia.
- 8. Decree 160/2017 of 13 October 2017 of the Council declaring the Sierra de Salinas woodland in Villena to be of public utility and adding it to the catalogue of public domain and public utility woodland in the province of Alicante.
- 9. Decree 193/2017 of 1 December 2017 of the Council modifying the catalogue of public domain and public utility woodland in the province of Alicante.

DATA SOURCES

Geographical and administrative data

Area: INE. Extensión superficial de las Comunidades Autónomas y Provincias, por zonas altimétricas. Anuario 1994. Capítulo 1. Apartado 1.3. Superficie y Altimetría. Available at:
http://www.ine.es/inebaseweb/pdfDispacher.do?td=154090&L=0

Population and population by size of municipality: INE. Official population figures, as taken from the revised municipal population register at 1 January. Summary by autonomous community. Population by autonomous community/city and gender. Taken from the website: 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 por municipios, islas, provincias y CCAA. Most recent data published: Population as at 1 January 2017 (Royal Decree 1039/2017 of 15 December 2017 declaring the population figures taken from the revised municipal population register at 1 January 2017 as official).

Data on number of provinces and municipalities: INE. Taken from the website: INEbase/Demografía y población/Padrón. Población por municipios/Cifras oficiales de población de los municipios españoles: Revisión del Padrón Municipal/Cifras oficiales de población resultantes de la revisión del Padrón municipal a 1 de enero/Resumen por comunidades autónomas/2 Distribución de los municipios por comunidades y ciudades autónomas y tamaño de los municipios.
http://www.ine.es/jaxiT3/Datos.htm?t=2851.

Population density (2017): Calculated in-house as the coefficient of the 2017 population and the surface area of each autonomous community. See sources above (population and area).

Change in inhabitants: Compiled in-house from population data for 2000, 2016 and 2017. See source above (population).

Length of coastline: *Informe 2014 sobre el estado del Patrimonio Natural y de la Biodiversidad en España*. Directorate-General for Biodiversity and Environmental Quality. MITECO. The information on the length of the publicly owned shoreline differs to the IGN data used in previous editions.

Socioeconomic data

Employment by sector (% of employed population by sector in 2017): INE. Taken from INEbase. INEbase/Mercado laboral/Actividad, ocupación y paro/Encuesta de población activa/Resultados anuales/Media de los cuatro trimestres del año/Resultados por comunidades autónomas/6.31 Ocupados por sector económico, sexo y comunidad autónoma. Porcentajes respecto del total de cada comunidad.
http://www.ine.es/jaxiT3/Tabla.htm?t=4949&L=0

Unemployment rate: INE. Taken from INEbase. INEbase/Mercado laboral/Actividad, ocupación y paro/Encuesta de Población Activa/Resultados Anuales/Media de los cuatro trimestres del año/Resultados por comunidades autónomas/6.42 Tasas de paro por distintos grupos de edad, sexo y comunidad autónoma.
http://www.ine.es/jaxiT3/Tabla.htm?t=4966&L=0

Employment rate: INE. Taken from INEbase. INEbase. Mercado laboral/Actividad, ocupación y paro/Encuesta de Población Activa/Resultados Anuales/Media de los cuatro trimestres del año/Resultados por comunidades autónomas/6.10 Tasas de actividad por distintos grupos de edad, sexo y comunidad autónoma.
http://www.ine.es/jaxiT3/Tabla.htm?t=4933&L=0

GVA by sector (% in 2017): INE. Taken from INEbase/ Economía/Cuentas económicas/Contabilidad Regional de España/Resultados/Enfoque funcional/ Serie contable: Serie 2010-2017 por comunidades y ciudades autónomas (Excel tables). The data for each autonomous community were obtained from the Spanish Regional Accounts. 2010 baseline (CRE-2010). Gross domestic product at market prices and gross value added at basic prices, by industry. Current prices. 3. Percentage breakdown.
http://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736167628&menu=resultados&idp=1254735576581#
Methodological notes: The overall values extracted have been obtained by aggregating the following:

- Agriculture: includes crop and livestock farming, forestry and fishing.
- Industry: includes mining and quarrying; manufacturing; electricity, gas, steam and air-conditioning supply; water supply, sewerage, waste management and remediation.
- Construction: includes construction.
- Services: includes wholesale and retail; repair of motor vehicles and motorcycles; transport and storage; hospitality, information and communication, finance and insurance, real estate, and professions and engineering; auxiliary activities, government and defence; compulsory social security; education; healthcare and social services and arts, recreation and entertainment; repair of household goods and other services.

The percentages estimated form part of the GDP estimate; the item 'Net taxes on products', which is usually 9.2 % of GDP, must be added. Therefore, GVA accounts for 90.8 % of total GDP.

Gross disposable household income per capita (2015, provisional data): INE. Taken from INEbase/Economía/Cuentas económicas/Contabilidad Regional de España/Cuentas Económicas/Contabilidad Regional de España. Base 2010/Enfoque institucional. Cuentas de Renta de los Hogares. Most recent data published: Serie 2000-2015 /Principales resultados/Tabla 2. Renta Disponible Bruta de los Hogares (Per Cápita).

School dropout rate: Ministry of Education and Vocational Training. Taken from the website: Educabase/ Explotación de las variables educativas de la encuesta de población activa / transición de la formación al trabajo. Abandono temprano/1. Abandono temprano de la educación-formación por comunidad autónoma, sexo y periodo.
Methodological notes: The school and vocational training dropout rates are understood as the 'percentage of the population between 18 and 24 that has not completed the second stage of secondary education and is not in any kind of education or vocational training'.

Data on the state of the environment

SOIL

CHANGES IN LAND USE BETWEEN 2011 AND 2014

Data provided by the IGN. Taken from the updated SIOSE. Since the changes in land use between 2011 and 2014 have been rounded to one decimal point, the total may not add up to exactly 100 %.

NUMBER OF CONTAMINATED SITES (2017)

Data provided by the Regional Focal Point. The table includes the sources, if detailed. It includes information on the number of sites declared and recovered as at 2017.

Methodological notes: In some autonomous communities, the number of recovered sites is higher than the number of declared sites. This is due to the option provided in Article 38 of Law 22/2011 allowing the voluntary recovery of sites without having declared them as contaminated under Article 4 of that Law..

NATURAL ENVIRONMENT

PROTECTED AREA (2017)

Data provided by the BDN (Nature Data Bank). Directorate-General for Biodiversity and Environmental Quality. Ministry for Ecological Transition.

FOREST FIRES

The 2017 forest fire data are taken from the report titled *Los Incendios Forestales en España. 1 enero – 31 diciembre 2017. Avance Informativo* (Forest Fires in Spain. 1 January to 31 December 2017. Advance estimate). Ministry of Agriculture, Fisheries and Food.

The data on total affected forest area within a protected area were provided by the Regional Focal Point. The table includes the sources, if detailed.

ROD AND GUN LICENCES

Number of rod and gun licences issued by regional governments in 2010, 2015, 2016 and 2017. The data were provided by the Regional Focal Point. The table includes the sources, if detailed. Where data were provided for each of the activities, the numbers of rod and gun licences are listed separately.

When this information was not provided by a regional government, the data for 2015 compiled by the Ministry of Agriculture, Fisheries and Food are used.

NUMBER OF WILD ANIMALS IN WILDLIFE SHELTERS

Number of wild animals in wildlife shelters in the various autonomous communities in 2010, 2015, 2016 and 2017. The data were provided by the Regional Focal Point. The table includes the sources, if detailed.

AGRICULTURE

ORGANIC CROP AND LIVESTOCK FARMING

The data on organically farmed land (ha) and the number of organic livestock farms in each autonomous community were provided by the Regional Focal Point. The table includes the sources, if detailed.

WASTE

WASTE PER CAPITA (kg/capita), REFERRING TO HOUSEHOLD/MUNICIPAL WASTE, SEPARATE PAPER/CARDBOARD COLLECTION, SEPARATE GLASS COLLECTION, SEPARATE PACKAGING COLLECTION, CONSTRUCTION/DEMOLITION WASTE AND INDUSTRIAL WASTE

Data provided by the Regional Focal Point. The table specifies the year the data refer to and the source.

AIR

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE REGULATED POLLUTANT RANGES. 2016.

Source: Ministry for Ecol ogical Transition, 2018. BDCA (Air Quality Database). Directorate-General for Biodiversity and Environmental Quality. Data provided on express request.

Methodological notes: The data show the percentage of stations included in each of the ranges into which the annual mean concentration (measured in µg/m^3) of each pollutant is classified:

NO_2: referring to the Lower Assessment Threshold (LAT), Upper Assessment Threshold (UAT) and the Annual Limit Value (ALV). The ranges are as follows:

- Concentrations less than or equal to the LAT/2 (13 µg/m^3)
- Concentrations between the LAT/2 and the LAT (13–26 µg/m^3)
- Concentrations between the LAT and the UAT (26–32 µg/m^3)
- Concentrations between the UAT and the ALV (32–40 µg/m^3)
- Concentrations greater than the ALV (>40 µg/m^3)

PM10: referring to the Lower Assessment Threshold (LAT), Upper Assessment Threshold (UAT) and the Annual Limit Value (ALV). These ranges are as follows:

- Concentrations less than or equal to the LAT/2 (10 µg/m^3)
- Concentrations between the LAT/2 and the LAT (10–20 µg/m^3)
- Concentrations between the LAT and the UAT (20–28 µg/m^3)
- Concentrations between the UAT and the ALV (28–40 µg/m^3)
- Concentrations greater than the ALV (>40 µg/m^3)

PM2.5: referring to the Lower Assessment Threshold (LAT), Upper Assessment Threshold (UAT) and the Annual Limit Value (ALV). These ranges are as follows:

- Concentrations less than or equal to the LAT/2 (6 µg/m^3)
- Concentrations between the LAT/2 and the LAT (6–12 µg/m^3)
- Concentrations between the LAT and the UAT (12–17 µg/m^3)
- Concentrations between the UAT and the ALV (17–25 µg/m^3)
- Concentrations greater than the ALV (>25 µg/m^3)

For ozone (O_3), the indicator shows the percentage of stations with sufficient data in each of the three ranges into which the maximum daily values of the eight-hour means are divided, which, for the protection of human health, must not exceed the average values on more than 25 occasions over three years (target value) or in one calendar year (long-term target). These ranges are as follows:

- Concentrations less than or equal to the LTT(120 µg/m^3)
- Concentrations between the LTT and the TV
- Concentrations greater than the TV (120 µg/m^3 and 25 exceedances in 3 years)

For all pollutants, the number of stations that have been used for the assessment is presented.

ENERGY

ELECTRICITY CONSUMPTION PER CAPITA: ELECTRICITY DEMAND PER CAPITA (MWh/capita)

The indicator is calculated using the coefficient between electricity demand, supplied by Spanish grid operator REE, and the population in the revision of the municipal register as at 1 January of each year, obtained from the INE.
Methodological notes: The data refer to consumption by end clients, by autonomous community.

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO REQUESTS FOR INFORMATION

This specifies the number of requests for information received and processed in 2017, as well as the time taken to respond to them. Data provided by the Regional Focal Point. The table includes the sources, if detailed.

ORGANISATIONS REGISTERED UNDER EMAS AND PRODUCTS AWARDED ECOLABELS

This specifies the number of organisations registered under the Eco-Management and Audit Scheme, as well as the number of products awarded an ecolabel. Both figures refer to 2017 or the year specified. The data were provided by the Directorate-General for Biodiversity and Environmental Quality at the MITECO or by the Regional Focal Point.

NUMBER OF FACILITIES GRANTED ENVIRONMENTAL LICENCES

This specifies the number of facilities holding environmental licences in 2010, 2015, 2016 and 2017. Data provided by the Regional Focal Point. The table includes the sources, if detailed.

Environmental reports

Data provided by the regional government via the EIONET Regional Focal Points.

Links to recommended websites on the environment in each autonomous community/city

Data provided by the regional government via the EIONET Regional Focal Points.

Relevant data or information

Data provided by the regional government via the EIONET Regional Focal Points.

Appendices

I Index of initials, acronyms, abbreviations, units and clarifications

II Thematic index of indicators

III Contributors to production and review of this report

APPENDIX I

INDEX OF INITIALS, ACRONYMS, ABBREVIATIONS, UNITS AND CLARIFICATIONS

AB	Autonomous Body
AC	Autonomous Community
ACEA	European Automobile Manufacturers Association
AEMET	Agencia Estatal de Meteorología (State Meteorological Agency)
AENA	Aeropuertos Españoles y Navegación Aérea (Spanish Airports Authority)
AEPLA	Asociación Empresarial para la Protección de las Plantas (Plant Protection Trade Association)
AGE	Administración General del Estado (General State Administration)
ALV	Annual Limit Value
ANFAC	Asociación Española de Fabricantes de Automóviles y Camiones (Spanish Association of Automobile and Truck Manufacturers)
ANFFE	Asociación Nacional de Fabricantes de Fertilizantes (National Association of Fertiliser Manufacturers)
AROPE	At Risk of Poverty and/or Exclusion
AT	Assessment Threshold
BOE	Boletín Oficial del Estado (Official State Gazette)
BREF	Best Available Techniques reference documents
CAP	Common Agricultural Policy
CBD	Convention on Biological Diversity
CCF	Canopy Cover Fraction
CDR	Central Data Repository of the EEA
CDTI	Centro para el Desarrollo Tecnológico Industrial (Centre for the Development of Industrial Technology)
CEDEX	Centro de Estudios y Experimentación de Obras Públicas (Centre for Public Works Studies and Experimentation)
CFP	Common Fisheries Policy
CIEMAT	Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (Centre for Energy, Environmental and Technology Research)
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLC	Corine Land Cover
CNAE	Clasificación Nacional de Actividades Económicas (National Classification of Economic Activities)
CNE	Contabilidad Nacional de España (Spanish National Accounts)
CNMC	Comisión Nacional de los Mercados y la Competencia (National Commission on Markets and Competition)
COP	Conference of the Parties on the United Nations Framework Convention on Climate Change
CPI	Consumer Price Index
CRF	Common Reporting Format
DG	Directorate-General
DGPCE	Dirección General de Protección Civil y Emergencias (Directorate-General for Civil Protection and Emergencies)
DGT	Dirección General de Tráfico (Directorate-General for Traffic)
DIRCE	Directorio Central de Empresas (Central Companies Directory)
DLV	Daily Limit Value
DMC	Domestic Material Consumption
DPMT	Dominio Público Marítimo Terrestre (Publicly Owned Shoreline)
DRR	Disaster Risk Reduction
EC	European Commission
Ecoembes	Non-profit organisation devoted to the recovery of packaging waste throughout Spain
EEA	European Environment Agency
EEC	European Economic Community
EFF	European Fisheries Fund
EIONET	Environment Information and Observation Network
EL	Environmental Licence
EMAS	Eco-Management and Audit Scheme
EMAU	Estrategia de Medio Ambiente Urbano (Urban Environment Strategy)
EMEP/GAW/CAMP	European Monitoring and Evaluation of Pollutants/Global Atmospheric Watch/Comprehensive Atmospheric Monitoring Programme
EOH	Encuesta de Ocupación Hotelera (Hotel Occupancy Survey)
EPA	Encuesta de Población Activa (Active Population Survey)
EPF	Encuesta de Presupuestos Familiares (Household Budget Survey)
EPO	European Patent Office

ERDF	European Regional Development Fund
ESA	European System of Accounts
ESYRCE	Encuesta sobre Superficies y Rendimientos de Cultivos (Crop Area and Yield Survey)
ETC	European Topic Centre
EU	European Union
EU	European Union
EU-15	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom
EU-25	Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, United Kingdom
EU-27	EU 25 + Bulgaria and Romania
EU-28	EU-27 + Croatia
Eurostat	Statistical Office of the European Union
FAMILITUR	Spanish national tourism survey
FAO	Food and Agriculture Organization of the United Nations
FEMP	Federación Española de Municipios y Provincias (Spanish Federation of Municipalities and Provinces)
FRONTUR	Spanish border survey of inbound tourism
GAW	Global Atmospheric Watch
GBAORD	Government Budget and Appropriations or Outlays for R&D
GDP	Gross Domestic Product
GHG	Greenhouse gas
GIS	Geographic Information System
GoO	Guarantee of Origin
GVA	Gross Value Added
HLV	Hourly Limit Value
HORECA	Hotel, Restaurant and Catering sector
IDAE	Instituto para la Diversificación y Ahorro de la Energía (Institute for Energy Saving and Diversification)
IDF	Inventario de Daños Forestales (Inventory of Forest Damage)
IEA	International Energy Agency
IED	Industrial Emissions Directive
IEEM	Inventario Español de Especies Marinas (Spanish Inventory of Marine Species)
IEET	Inventario Español de Especias Terrestres (Spanish Inventory of Terrestrial Species)
IEHEM	Inventario Español de Hábitat y Especies Marinas (Spanish Inventory of Marine Habitats and Species)
IEP	Índice de Superficie de Espacios Protegidos (Index of Protected Areas)
IEPNB	Inventario Español del Patrimonio Natural y de la Biodiversidad (Spanish Inventory of Natural Heritage and Biodiversity)
IET	Instituto de Estudios Turísticos (Institute for Tourism Studies)
IFA	International Fertilizer Association
IFN	Inventario Forestal Nacional (National Forest Inventory)
IGME	Instituto Geológico y Minero de España (Spanish Institute of Geology and Mining)
IGN	Instituto Geográfico Nacional (National Geographic Institute)
IMS	Integrated Management System
INE	Instituto Nacional de Estadística (National Statistics Institute)
INES	Inventario Nacional de Erosión de Suelos (National Soil Erosion Inventory)
INIA	Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (National Institute for Agricultural and Food Research and Technology)
IPCC	Intergovernmental Panel on Climate Change
IPI	Industrial Production Index
IPPC	Integrated Pollution Prevention and Control
IUCN	International Union for Conservation of Nature
IUME	Integrated Urban Monitoring in Europe
JACUMAR	Junta Nacional Asesora de Cultivos Marinos (National Advisory Board for Marine Aquaculture)
LAT	Lower Assessment Threshold
LTT	Long-Term Target
LUCAS	Land Use Cover Area Statistical Survey
LULUCF	Land Use, Land-Use Change and Forestry

LV	Limit Value
MaB	Man and Biosphere
MAPA	Ministerio de Agricultura, Pesca y Alimentación (Ministry of Agriculture, Fisheries and Food)
MAPAMA	Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente (Ministry of Agriculture and Fisheries, Food and Environment)
MF	Ministerio de Fomento (Ministry of Public Works)
MINETAD	Ministerio de Energía, Turismo y Agenda Digital (Ministry of Energy, Tourism and Digital Agenda)
MITECO	Ministerio para la Transición Ecológica (Ministry for Ecological Transition)
MSCBS	Ministerio de Sanidad, Consumo y Bienestar Social (Ministry of Health, Consumer Affairs and Social Well-Being)
MSSSI	Ministerio de Sanidad Servicios Sociales e Igualdad (Ministry of Health, Social Services and Equality)
MSW	Municipal Solid Waste
NABS	Nomenclature for the analysis and comparison of science budgets and programmes
NÁYADE	National bathing water information system
NEDIES	Natural and Environmental Disasters Information Exchange System
NGO	Non-Governmental Organisation
NIR	National Inventory Report
NOISE	Noise Observation and Information Service for Europe
NP	National Park
NPISH	Non-Profit Institution Serving Households
NRC	National Reference Centre
OECD	Organisation for Economic Co-operation and Development
OEPM	Oficina Española de Patentes y Marcas (Spanish Patents and Trademarks Office)
OMM	Observatorio de la Movilidad Metropolitana (Metropolitan Mobility Monitoring Centre)
ONS	Observatorio Nacional de la Sequía (National Drought Monitoring Centre)
OSPAR	Oslo–Paris Convention for the Protection of the Marine Environment of the North-East Atlantic
OTLE	Observatorio del Transporte y la Logística en España (Spanish Transport and Logistics Monitoring Centre)
OWL	Other Wooded Land
PA	Protected Area
PAND	Programa de Acción Nacional contra la Desertificación (National Action Programme to Combat Desertification)
PCT	Patent Cooperation Treaty
PDRS	Plan de Desarrollo Rural Sostenible (Sustainable Rural Development Plan)
PECBM	Pan-European Common Bird Monitoring Scheme
PEIT	Plan Estratégico de Infraestructuras y Transportes (Strategic Infrastructure and Transport Plan)
PEMAR	Plan Estatal Marco de Gestión de Residuos 2016–2022 (National Framework Plan for Waste Management 2016–2022)
PEPR	Programa Estatal de Prevención de Residuos 2014–2020 (National Waste Prevention Programme 2014–2020)
PHE	Patrimonio Histórico Español (Spanish Historical Heritage)
PIMA	Plan de Impulso al Medio Ambiente (Plan for the Promotion of the Environment)
PIN 2020	Plan Integral de Política Industrial 2020 (2020 Comprehensive Industrial Policy Plan)
PITVI	Plan de Infraestructuras, Transporte y Vivienda (Infrastructure, Transport and Housing Plan)
PM	Particulate Matter in the air
PNCA	Plan Nacional de Calidad de las Aguas: Saneamiento y Depuración 2007–2015 (National Water Quality Plan: Sewerage and Treatment 2007–2015)
PNIR	Plan Nacional Integrado de Residuos 2008–2015 (National Integrated Waste Plan 2008–2015)
PNR	Plan Nacional de Reformas (National Reform Plan)
PNSD	Plan Nacional de Saneamiento y Depuración (National Sewerage and Waste Water Treatment Plan)
PNT	Plan Nacional Transitorio para grandes instalaciones de combustión (National Transition Plan for large-scale combustion plants)
PORN	Plan de Ordenación de los Recursos Naturales (Natural Resource Management Plan)
PRTR	Pollutant Release and Transfer Register
PRUG	Plan Rector de Uso y Gestión (Master Plan on Use and Management)
PTA	Public Transport Authority
RAMPE	Red de Áreas Marinas Protegidas de España (Spanish Network of Marine Protected Areas)
RAMSAR	City in Iran where the Convention on Wetlands of International Importance was signed in 1971. The wetlands declared by countries are included in the RAMSAR List.
REDIA	Red de Inspección Ambiental (Environmental Inspection Network)
REPACAR	Asociación Española de Recuperación de Papel y Cartón (Spanish Paper and Cardboard Recycling Association)
RIS	Research and Innovation Smart Specialisation Strategy

RMIP	Reservas Marinas de Interés Pesquero (Marine Fishery Reserves)
RUSLE	Revised Universal Soil Loss Equation
RW	Railway
SAC	Special Area of Conservation
SACRE	Programa de Seguimiento de las Aves Comunes Reproductoras empleado por la SEO/BirdLife (Common Reproductive Birds Monitoring Programme run SEO/BirdLife)
SCI	Site of Community Importance
SCOPUS	Database of citations and bibliographic references maintained by the Elsevier publishing house
SDG	Sustainable Development Goal
SEAP	Sustainable Energy Action Plan
SECEM	Sociedad Española para la Conservación y Estudio de los Mamíferos (Spanish Society for the Conservation and Study of Mammals)
SEO	Sociedad Española de Ornitología (Spanish Ornithological Society)
SEPRONA	Servicio de Protección de la Naturaleza de la Guardia Civil (Civil Guard Nature Protection Service)
SICA	Sistema de Información sobre la Contaminación Acústica (Noise Pollution Information System)
SIGNUS	Sistema Integrado de Gestión de Neumáticos Usados (Integrated Management System for End-of-Life Tyres)
SIOSE	Sistema de Información sobre Ocupación del Suelo de España (Spanish Land Cover Information System)
SNAP	Selected Nomenclature for Air Pollution
SNS	Sistema Nacional de Salud (National Health System)
SOER 2005	State and Outlook Environment Report 2005
SOER 2010	State and Outlook Environment Report 2010
SOER 2015	State and Outlook Environment Report 2015
SPA	Special Protection Area for wild birds
SPAMI	Specially Protected Area of Mediterranean Importance
SPCAN	Servicio de Protección contra Agentes Nocivos (Service for Protection Against Harmful Agents)
TMR	Total Material Requirement
TPE	Tourist Population Equivalent
TURESPAÑA	Spanish Institute of Tourism
TV	Target Value
UAA	Utilised Agricultural Area
UAT	Upper Assessment Threshold
UN	United Nations
UNEP	United Nations Environment Programme
UNISDR	United Nations Office for Disaster Risk Reduction
UNWTO	World Tourism Organization
UVB	Ultraviolet-B radiation
UW	Urban Waste
WA	Water Authority
WEEE	Waste Electrical and Electronic Equipment
WHO	World Health Organization
WISE	Water Information System for Europe
WWF	World Wide Fund for Nature

Symbols, units and chemical compounds

€ **€05**	Euro Euro value at constant prices in 2005
€05	Euro
<	Less than
>	Greater than
µg	Microgram
1000 t	Thousand tonnes
CFC	Chlorofluorocarbon
CH4	Methane
CO	Carbon monoxide
CO2	Carbon dioxide
dB	Decibel. Measure of sound pressure level.
dB(A)	A-weighted decibel
GRT	Gross Registered Tonnage
GT	*Gross Tonnage*: measure of tonnage of fishing vessels. In use since 1998, when it replaced *Gross Registered Tonnage* (GRT)
GWh	Gigawatt-hour
h	Hour
ha	Hectare
HBFC	Hydrobromofluorocarbon
HCFC	Hydrochlorofluorocarbon
hm3	Cubic hectometre
inhab	Inhabitant
kg	Kilogram
km	Kilometre
km2	Square kilometre
koe	Kilogram of oil equivalent
Kt	Thousand tonnes
ktoe	Kilotonne of oil equivalent
kW	Kilowatt
kWh	Kilowatt-hour
l	Litre
LAeq	Equivalent continuous A-weighted sound pressure level. Expressed in A-weighted decibels (A)
Lden	Day-evening-night noise indicator. Measured in dB
Leq	Equivalent continuous noise level. Expressed in dB
Ln	Night-time noise indicator. Measured in dB
m2	Square metre
m3	Cubic metre
mg	Milligram
MW	Megawatt
MWp	Megawatt peak
MWt	Megawatt thermal
N	Nitrogen
N2O	Nitrous oxide
NH3	Ammonia
NMVOC	Non-Methane Volatile Organic Compound
NOx	Nitrogen oxide
O3	Ozone
P	Phosphorus
P2O5	Orthophosphate

PCB	Polychlorinated biphenyl
PCT	Polychlorinated terphenyl
PFC	Perfluorocarbon
PJ	Petajoule
p-km	Passenger-kilometre. Unit of measurement used for passenger transport, calculated by multiplying the annual number of passengers by the number of kilometres travelled.
PM10	Particulate matter with a diameter of 10 micrometres or less
PM2.5	Particulate matter with a diameter of 2.5 micrometres or less
POC	Persistent Organic Compound
ppb	Parts per billion
ppm	Parts per million
SF6	Sulphur hexafluoride
SO2	Sulphur dioxide
t	Tonne
TJ	Terajoule
t-km	Tonne-kilometre. Unit of measurement used for freight transport, calculated by multiplying the number of tonnes transported by the number of kilometres travelled.
VOC	Volatile Organic Compound

CLARIFICATIONS

Clarification 1

BOE No 180 of Friday 29 July 2005 published the Decision of the Undersecretariat of 28 July 2005 making public the Resolution of the Council of Ministers of 22 July 2005 approving the guidelines on technical regulations. This resolution defines the official names of Spain's autonomous communities and cities granted a statute of autonomy. The full 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 Asturias
- Autonomous Community of Cantabria
- Autonomous Community of Rioja
- Autonomous Community of Murcia
- Autonomous Community of Valencia
- Autonomous Community of Aragon
- Autonomous Community of Castile-La Mancha
- Autonomous Community of the Canary Islands
- Autonomous Community of Navarre
- Autonomous Community of Extremadura
- Autonomous Community of the Balearic Islands
- Autonomous Community of Madrid
- Autonomous Community of Castile and Leon
- Autonomous City of Ceuta
- Autonomous City of Melilla

Notwithstanding this resolution, throughout the Environmental Profile of Spain abbreviated references to the autonomous communities are used in the text, charts and tables since using their full official names would be cumbersome.

Clarification 2

The locations of Spain's autonomous communities are shown on the administrative map below.

MAP IDENTIFYING SPAIN'S AUTONOMOUS COMMUNITIES AND AUTONOMOUS CITIES

Clarification 3

The links below provide access to the statutes of autonomy of all Spain's autonomous communities and cities. All versions of the statutes are available, from the original text through to the one currently in force.

- Statute of Autonomy of the Basque Country
- Statute of Autonomy of Catalonia
- Statute of Autonomy of Galicia
- Statute of Autonomy of Andalusia
- Statute of Autonomy of Asturias
- Statute of Autonomy of Cantabria
- Statute of Autonomy of Rioja
- Statute of Autonomy of Murcia
- Statute of Autonomy of Valencia
- Statute of Autonomy of Aragon
- Statute of Autonomy of Castile-La Mancha
- Statute of Autonomy of the Canary Islands
- Reincorporation and revision of the legislature of Navarre
- Statute of Autonomy of Extremadura
- Statute of Autonomy of the Balearic Islands
- Statute of Autonomy of Madrid
- Statute of Autonomy of Castile and Leon
- Statute of Autonomy of Ceuta
- Statute of Autonomy of Melilla

For further information see:

https://www.boe.es/legislacion/codigos/codigo.php?id=17&modo=1&nota=0&tab=2.

Clarification 4

Publication of this edition coincided with a change of government in Spain and the consequent restructuring of its ministerial departments. It is therefore possible that some of the sources referred to in this report appear under the name they bore when the source was consulted.

APPENDIX II
THEMATIC INDEX OF INDICATORS

THEME / INDICATOR **PAGE**

APPENDIX III
CONTRIBUTORS TO PRODUCTION AND REVIEW OF THIS REPORT

Spanish EIONET National Reference Centres:

Irene Olivares Bendicho (Air Quality), Martín Fernández Diez-Picazo (Mitigation of Air Pollution and Climate Change), Francisco Javier Heras Hernández (Climate Change: Impacts, Vulnerability and Adaptation), José Manuel Sanz Sa (Noise), Víctor Manuel Arqued Esquía (Water), María Itziar Martín Partida (Marine and Coastal Environment), Carmen Asencio Castillejo (Fishing), Miguel Aymerich Huyghues-Despointes / Blanca Ruiz Franco (Natural Environment), Antonio Arozarena Villar (Land Cover and Spatial Planning), Antonio Callaba de Roa (Soil), Margarita Ruiz Saiz-Aja (Waste and Sustainable Production and Consumption), Miguel Llorente Isidro (Natural and Technological Hazards), M. Teresa Velasco Rincón (Energy), Jesús Merchán Rubio (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), Laura Hernández Garvayo (Economic Instruments), Rosario Toril Moreno (Communications), Antonio Martínez Serrano/ Ana Luisa Solera Carnicero (Environmental Statistics)

Spanish EIONET Regional Focal Points:

José Manuel Moreira Madueño (Andalusia), Ignacio Iturralde Navarro (Aragon), D. Manuel Gutiérrez García (Asturias), Pedro Nicolás Miguel Martín (Canary Islands), Alfonso Peña Rotella (Cantabria), Sagrario Ruiz Díaz (Castile-La Mancha), Carmelo Alonso Temiño (Castile and Leon), Francesc Xavier Camps Fernández (Catalonia), Francisco Javier Martínez Medina (Ceuta), Fernando Ribes Blasco (Valencia), Isabel de Vega (Extremadura), Mª Isabel Seoane Ramallo (Galicia), Aldo Gabriel Bardi Figini (Balearic Islands), Ángel Martínez Garrido (Rioja), María José Gallego Muñoz (Madrid), Noelia Jodar García (Melilla), Ramón Ballester Sabater (Murcia), Amaia Bescos Atin (Navarre), Marta Iturribarría (Basque Country).

Other experts contributing to content production:

Air quality: María José Cornide Cristóbal, María Hervás Martín, Rebeca Javato Martín.

Air emissions and climate change: Juan Carlos Cano Rego, Julia García Ruíz-Bazán.

Water: Juan Alandez Rodríguez, María del Carmen Coleto Fiaño, José Fernández del Pino, Concepción Marcuello Olona, Javier de Pablos Navarro, Alejandra Puig Infante.

Soil: Francisco Javier Cano, Luís Martín Fernández, Araceli Martínez Ruíz.

Natural environment: Alfredo Goenaga Sánchez, Jaime Hervás González, David León Carbonero, Tania López Piñero, Antonio López Santalla, Juan Carlos del Moral, Mónica Puebla Estrada, Elena Robla González, José Luis Rubio García, María Luisa Sánchez López, Maria José de la Torre Sainz, María Torres-Quevedo García de Quesada, Belén Torres Martínez, Iñigo Vázquez-Dodero Estevan, Cristina Viejo Téllez, Juan Manuel Villares Muyo.

Coasts and marine 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 and circular economy: Gema de Esteban Curiel, Beatriz Terribas Fernández

Environmental research, development and innovation: Cecilia Cabello Valdés, Carlos Rodriguez Méndez, Joseba Sanmartín Sola.

Waste: Alicia Pollo Albéniz, Carmen Tapia Carrasco.

Agriculture: Mónica Domench.

Tourism: Luis Gayo Ibáñez, Alberto Moral González.

Natural and man-made disasters: Francisco José Ruiz Boada, Gema Yáñez Sánchez.

Regional government:

Roger Bassols Morey, Marisa Bernal González, 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, Elena Ortega Díaz, Julio Antonio Palomares Puente, Mª Pilar Paz Otero, Carmen Raíndo Dávila, Covadonga Viedma Gil de Vergara.

Other contributing institutions

National Parks Network. OAPN (National Parks Agency). Ministry for Ecological Transition.
AEPLA (Plant Protection Trade Association).
CENEAM (National Centre for Environmental Education). OAPN (National Parks Agency). Ministry for Ecological Transition.
FECYT (Spanish Foundation for Science and Technology). Ministry of Science, Innovation and Universities.
IDAE (Institute for Energy Saving and Diversification). Ministry for Ecological Transition.
REE (Spanish Electricity Network).
SEPRONA (Nature Protection Service) and the Civil Guard Public Information Office. Directorate-General for the Police and Civil Guard. Ministry of the Interior.

Drafting and production:

Miguel-Álvaro Aguirre Royuela, Cristina Álvarez Tutor, Miguel Tufic Brocca Tovar, Elena Cameselle Mellina, Rocío Fernández Jiménez, Carlos Hernández Vicente, Óscar Herranz Baquero, Beatriz Mesa León, Raul Sabina Maldonado, Fernando Saura, María Tourné White, Eva Vallejo González.