

Barcelona Treball

Environment

Sector Report 2013

With the collaboration of:
Col·legi d'Ambientòlegs de
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The 10 keys to understanding the sector

The environment sector contributes in a 3,6% of the Spanish GDP and the number of jobs is situated between 400.000 and 500.000, which is approximately 2.2%- 2.5% of the total employed population.

The sector

The environment industry includes a very diverse set of activities that generate goods and services in managing, restoring, improving, preventing and controlling environmental impacts on water, air and soil, preserving ecosystems and tackling problems related to waste management, noise and urban planning.

Main areas of activity

There are four areas of environment industry, each of which undertakes a given type of activity: environmental oversight and analysis; the management of natural spaces; environmental management; and the dissemination of environmental knowledge, education and advice.

Trends

The need to take additional measures to reduce emissions of particulates, nitrogen oxides and ozone precursors in order to achieve the air quality objectives associated with these contaminants will lead to an increase in demand for air quality services from government.

Economic importance

The GDP sector's contribution in 2010 was 3.6%. This value in 2005 was 2.2%.

The environmental sector in Spain in 2010 had a turnover of €40.000 million, while registering a slight decrease compared with 2009 (€40.405 million). The maximum was recorded in 2008 with a sales volume of €46.608 million, more than the double billed in 2005 (€20.000 million approximately).

Employment

Different studies on the green economy sector and the environmental¹ sector indicates that the sector employs between 400.000 and 500.000 people in Spain. In any case, these are values that have been increased over 200% compared with 2000 data.

In general it is a sector that promotes the generation of high-quality jobs and quite or very skilled. In the next few years, the Member States of the European Union will continue to prioritise the provision of environmental services such as infrastructure for treating waste and wastewater, environmentally sustainable construction and cutting greenhouse gas

¹ Green Jobs for a Sustainable Development. The Spanish case. SustainLabour in collaboration with the Biodiversity Foundation. Study of the economic sectors of Environment in Spain in 2011. Fundación Ambiental.

emissions. The implementation of the Water Framework Directive, in force since late 2000, which establishes requirements regarding quality, evaluation, monitoring and implementation of action plans for improving bodies of water, will generate new jobs with a different profile, especially in the field of consultancy.

Professional profiles most in demand

The majority of positions in the industry are highly specialised, for example, in the field of water or waste, so companies tend to run initial, continuous and occupational training schemes for each position. Companies also state that a general education relating to the environment is necessary, given the multidisciplinary nature of the industry.

Occupations most in demand

Companies increasingly value knowledge in environmental management systems, environmental impact or evaluation studies, prevention techniques and environmental auditing. Hence the positions in the greatest demand are environmental legal advisors, environmental oversight agency specialists and waste recovery experts. Demand for people in renewable energy has also been increasing, especially installers of photovoltaic energy systems.

Future scenarios

The passing of environmental laws and directives, such as the Sustainable Economy Act, will lead to robust growth in environment-related jobs. It is also thought that the use of government grants to promote renewable energy sources will increase. Beyond the significant stimulus from the public authorities, promotion will also come from self-interested private initiative; things will move in this direction in Spain's case because of successive failures to keep to agreements, for example on greenhouse gas emissions.

Currently, Spain has several plans and policies regarding respect for the environment and promoting sustainability, which are a basic foundation to make the step towards a green economy model.

Weaknesses

In Spain there are serious threats to biodiversity despite conservation measures and the efforts of the authorities. According to a report by the Sustainability Observatory (OSE), the greatest threat is changes in land use, particularly soil sealing. 20% of new sealed areas constructed in recent years have been on forests, scrubland and pastureland.

In addition, the economic crisis and budget cuts that are taking place since 2010 are a brake on the momentum of some plans and actions to promote energy conservation and greenhouse gas reduction.

Opportunities

One of the main opportunities in the environmental field is take advantage in the potential of green jobs that may produce in the process of restructuring sectors that develop unsustainable activities towards more environmentally friendly. These economic sectors and activities, such as construction, transport and logistics industry, vehicle manufacturing and the production of steel and paper, can incorporated into their production processes or their ended products elements of efficiency and energy savings.

01 Introduction to the sector

The environment is everything around us. In particular, it affects and determines the life circumstances of people or of society as a whole. It includes everything of natural, social and cultural value at a given place and time that has an influence on human life, now and for future generations. That is to say, it is not just about the space in which life is lived, but also includes living beings, objects, water, soil, air and the relationships between them, as well as intangible elements such as culture. In recent decades the idea that environmental problems are, above all, human problems rather than just natural ones has been gaining ground: the environmental crisis has a social dimension that is starting to achieve general recognition. This involves the re-evaluation of education so that it enables people, individually and collectively, to tackle conflicts and come up with or recognise solutions and put them into practice.

Hence the environment industry includes a very diverse set of activities that generate goods and services related to managing, restoring, improving and preventing and controlling environmental impacts on water, air and soil, preserving ecosystems, planning and land management, the implementation of environmental regulations, participation and environmental conflict mediation and the reduction of environmental problems related to waste management and noise. The activities are undertaken by companies specialising in environmental protection, by governments through their established environmental protection services and by companies from the various sectors of the economy (public sector, agriculture, industry and services). Likewise, the environmental sector has an important role in research, design of products and services related to eco-efficiency and therefore is renowned for being a sector with a high degree of innovation delivering environment and sustainability scientific and technical advisory services.

02

Main areas of activity

Environmental oversight and analysis

The area of environmental oversight and analysis includes the activities of companies and professionals working in the prevention and environmental oversight of activities regulated by the Environmental Protection and Oversight Act 20/2009, of 4 December, and the Integrated Pollution Prevention and Control Act 16/2002, of 1 July. Amongst other things, they oversee, adapt and authorise companies' activities and facilities, check that companies have an environmental licence or substantive authorisation, ensure that the periodic environmental checks required by law are being carried out and check that companies have the insurance relating to the industry or environmental responsibility that is mandatory by law.

This area also includes the entire field of agricultural pest control.

The management of natural spaces

The management of natural spaces includes all activities relating to their conservation, which is crucial to maintaining biodiversity, geodiversity and natural resources. These activities are support for and regulation of the natural cycles and processes necessary for life, and they supply natural resources and socio-environmental services that have a direct impact on society. Such services enable adequate management of natural areas in order for them to be in a favourable state of conservation; this allows them to fulfil their roles in the natural environment and provide society with the services required to contribute to human wellbeing.

Environmental management

Amongst other things, environmental management comprises strategies for developing social responsibility among businesses, enabling environmental issues to be integrated voluntarily into economic objectives and relationships between stakeholders. Environmental management activities consist, for example, of integrating environmental management systems; the most used ones are ISO 14001 and the EU Eco-Management and Audit Scheme (EMAS).

The goal of environmental management is to enable organisations to evaluate and improve their environmental behaviour and disseminate relevant information to the public and other interested parties.

The Department of the Environment and Housing's Directorate-General for Environmental Quality is the body responsible for managing the EMAS in Catalonia.

The dissemination of environmental knowledge, education and advice

The area of dissemination of environmental knowledge, education and advice covers activities whose purpose is to educate the public and raise its awareness of environmental problems. Therefore, these services play a key role in moving towards environmental, economic and social sustainability. This type of service tends to be carried out both by the government and by private companies. In the case of the Department of the Environment and Housing, the green schools programme stands out, as do environment prizes and the publication of a wide range of educational resources.

03

Sector trends

Obligations deriving from environmental legislation enacted at all levels of government will have a very significant impact on the development of the industry and associated employment.

Increased production of goods and services in the environment industry

The total global turnover of the production of goods and services in the environmental market in 2010 came to \$640 billion, which is triple the equivalent figure for the 1990s. Recent OECD data show the great importance that production of environmental goods and services has had since the 1990s: while in the early 1990s total turnover was estimated at \$200 billion per year, at the turn of the century this figure was around \$520 billion.

Decreased spending on environmental goods and services in developed countries

In a study carried out by the European Union, the trends for growth in spending on environmental goods and services in the global market were between 5% and 10% per year. Although many developed countries have already been investing in this area since the 1970s, in some of them spending seems to be slowing down to some extent, for example the United States. It is estimated that spending in the developing countries of Asia and Latin America will increase considerably in coming years, as it will in Eastern and Central Europe.

The factors that have led to this decreased investment in environmental goods and services are, by order of importance, compliance with legislation, competitive improvements, social pressure and customer pressure. It is for this reason that obligations generated by legislation will have a very important effect on the development of the industry and its associated employment.

Renewable energy and job creation

The effective application of legislation such as Directive 96/61/EC concerning integrated pollution prevention and control (the IPPC Directive) and the Environmental Administration (Comprehensive Intervention) Act 3/98 (the IIAA Act) encourages the researching and application of new environmental technologies and promotes renewable energy sources. Hence these areas are becoming one of the strengths of environment sector economic activity and employment. In fact, according to the study by trade union CCOO about renewable energy and employment in Catalonia (2008), during the period 2003 to 2008 the bulk of Catalan companies engaged in renewable energy grew continuously.

Spain is the European country with the most environmental quality certificates

Spain is the leading country in Europe, and the third in the world, by number of ISO 14001 certificates for environmental management systems. The ISO 14001 standard is the world's most widespread environmental management tool with a total of 223,149 certificates in 159 countries; there are 16,527 entities and companies with one in Spain.

Improved environmental performance of the capital goods industry's processes and products

In 2010, the Capital Goods Manufacturing Industry Observatory stressed the important contribution that the industry needs to make to the sustainable development of industrial activity, as it accounts for 12% of Spanish industry's GDP and employs 412,000 people. Its most important conclusions and recommendations include promoting the improved environmental performance of the capital goods industry's processes and products, anticipating future advances in legislation in the area through public procurement, support programmes, training of workers, etc., and using public procurement as an instrument for encouraging the industry to change its model to technologically advanced products that incorporate environmental improvements. In short, businesses and manufacturers will have to build the socioeconomic value of environmental management solutions into their decision-making, annual planning, innovation and investment.

Green economy

The concept of "green economy" is defined as the shift to an environmentally efficient economy with a low level of greenhouse gas emissions and responsible use of resources to ensure the long-term welfare of people taking account possible ecological shortcomings in the future. Energy consumption per unit of GDP has been falling in the Spanish economy for some time, which is in line with what is taking place in the rest of the developed countries of the EU. This decrease contributes to increased energy efficiency and a higher proportion of renewable energy use, which in turn leads to a rise in the number of "green" jobs. Indeed, Spain is in fifth position in the international ranking for the number of renewable energy patents, behind only the USA, Japan, Germany and the UK.

Eco-Management and Audit Scheme (EMAS)

EMAS (Eco-Management and Audit Scheme) is a voluntary rule of the European Union which recognizes organizations that have implemented an Environmental Management System. The contribution of SMEs to the EU objectives towards sustainable growth is essential in terms of resource efficiency, green markets and green jobs. 23% of Spanish companies said that production costs have decreased in recent years due to the implementation of systems to improve efficiency (Eurobarometer 2012).

Spending by companies on environmental protection has increased in the industrial sector and Spain has the second highest number of European companies participating in the European Eco-Management and Audit Scheme (EMAS). Between 2005 and 2010 the number of Spanish industrial firms taking part in the EMAS rose from 180 to 402. The use of this system will generate the need for professionals that know how to use and implement it, especially operations directors or managers, environmental heads and technical staff. In fact, there has been a major increase in training courses designed to enable these professionals to build environmental management into a company's overall management system and learn about the tools required for proper environmental management.

Concern for air quality

In 2011 the Spanish government approved Royal Decree 102/2011 of 28 January concerning the improvement of air quality, due to the need to take additional measures to reduce particulate, nitrogen oxide and ozone precursor emissions. To achieve air quality objectives for these pollutants, the Ministry of Agriculture, Food and Environment has drawn up a detailed diagnosis and a comprehensive catalogue of possible measures. The discussion and selection of measures will guide the approval of the National Air Quality Plan in November 2011. This Plan will lead to increasing government demand for air quality services. Specifically, this Plan sets specific targets for air quality for each regulated pollutant, so that if these targets are exceeded, the Administration must approve specific plans to reduce levels and meet the set parameters.

Clean production as an opportunity for the traditional sectors

The clean production and the reduction of the environmental impact due to a bad waste management is a huge opportunity for Spanish economy. Thus, the internalization of environmental factors in traditional sectors of industry and the absorption of specific techniques for the characterization of environmental pollutants is a key element to promote waste reduction and improve its treatment.

In this sense, changes in environmental regulations, aimed at avoiding the use of polluting raw materials and reducing energy consumption and environmental impact of industrial processes, can become a key element to promote a sustainable economic model, more competitive and able to create new skilled jobs.

Some opportunities may be related to the use of new materials and organic components that facilitate the industry to develop a model of cleaner production and processing.

Specifically, the promotion of a sustainable economic model can result, in the medium to long term, in an economic transformation of the traditional sectors and with more environmental impact (automotive and industries based on natural resource extraction), generating recycling needs for workers in methods and in the techniques and machines used. According to the International Labour Organization (ILO) polluting industries are those that must make greater efforts in terms of structural reforms and, therefore, will require a larger transformation of the composition of jobs.

Similarly, measures to promote environmental respect and a green economy model can lead to the emergence of new activities that incorporate efficiency and energy savings elements in their production processes, such as transport, sustainable construction, the manufacture of automobiles with low emissions, the production of secondary aluminium, steel or concrete, and the recycled paper.

04

The sector in figures

Economic data

- According to the Forum Ambiental Foundation², the sector's contribution, in relation to GDP in 2010 was 3.6%. In 2005 was 2.2%, reaching in 2008 the highest level, with a contribution of 3.8% of GDP.
- The environmental sector in Spain in 2010 had a turnover of €40.000 million, registering a slight decrease compared to 2009 (€40.405 million). The maximum was recorded in 2008 with a sales volume of €46.608 million, more than double of what was billed in 2005 (€20.000 million approximately).
- Wastewater treatment and waste management account for three quarters of turnover in Europe's environment industry.
- In 2010 Spain was in last place in the EU ranking of environmental taxes as a percentage of GDP at 1,6% (the EU average is 2,4%) according to the Ministry of Agriculture, Food and Environment's 'Spain's Environmental Profile 2010' study.
- The volume of government contracts for sector companies fell by 17% in the first quarter of 2010, in relation with 2009.
- 30% of environmental companies in Catalonia are in the city of Barcelona, 70% in the Barcelona Metropolitan Area and 80% in the Province of Barcelona.
- In terms of number of companies, since late 2005 the industry's annual growth rate has been around 1,8%.
- In 2011, the number of companies performing environmental activities is divided as follows: harnessing, distribution and purification of water, 2.887 in Spain and 244 in Catalonia; wastewater collection and treatment, 485 in Spain and 84 in Catalonia; collection, treatment, disposal and recovery of waste, 2.990 in Spain and 497 in Catalonia; and remediation and other waste management services, 300 in Spain and 59 in Catalonia. In total, there are 6.662 companies operating in these areas in Spain and 884 in Catalonia in 2011. These figures do not include environmental research or environmental goods marketing companies as there is no breakdown for them in the CNAE 2009.
- The average turnover of environmental companies, between 2005 and 2010, increased between 40% and 184%³.
- Environmental consultancies have grown robustly in recent years, both as independent companies and as divisions or departments of companies in each specific sector. This is because of the importance of applying environmental management systems, environmental impact or evaluation studies, prevention techniques and environmental audits, which reinforces the trend in recent years of encouraging "preventing pollution at source".
- Spain is fifth in the world in the number of renewable energy patents, behind only the US, Japan, Germany and the UK. Specifically, according to the Ministry of Industry, Tourism and Trade, in Spain were made 39 patent applications related to renewable energy in 2000, in 2009 there were 200 patent.
- Spain leads Europe, and is third in the world, by number of ISO 14001 standard certificates for environmental management systems at 16.527 (year 2011). An ISO report shows certifications continuing to increase despite the crisis as they are considered a tool for making businesses competitive.
- Spain is one of the countries that have more deviations in the compliance of commitments under the Kyoto Protocol in terms of reducing gases. In 2012 Spain had to deal with payments ranging between €1.170 and €1.620 million for purchasing emission of CO₂. Spain could only increase a 15% of CO₂ emission during the 2008-2012 period in relation with 1990, but at the ending period, the increase in the number of emissions

² Study of the environment industry in Spain in 2011. Fòrum Ambiental Foundation.

³ Green Jobs for a sustainable development. The Spanish case. SustainLabour in collaboration with the Biodiversidad Foundation.

stood at 22,8%. CO₂ emissions in industrial and energy sectors rose between 2011 and 2012 by 9.2%⁴.

Employment data

- The environment industry employs at least 2,6 million people in the EU-15, although if indirect and induced jobs are included the number of people dependent on the industry would probably reach 4 million.
- In Spain in 2010, companies and institutions that form the core of the green economy directly employed more than a half a million professionals, 2,8% of the Spanish employment⁵. Of these jobs, 140.343 are in management and waste treatment.
- The standard company in the environment sector in Spain has a staff of 43 employees and an average turnover of €5,1 billion.
- A study by the Industrial Organisation School (EOI), *Green Jobs 2011*, shows that more than 400.000 jobs or 2,2% of the workforce are environment-related in this country. It is true that there is a long way to go before 100% of jobs can be considered “green”, but the trend suggests that a change in model to an economy with low carbon emissions is underway.
- Generally speaking, employment in the environmental sector is remaining stable in Catalonia. In 2003, the 1.519 companies engaged in these activities employed 42.274 people, while in 2009 (the first year of major crisis) the number of jobs dropped to 40.700. Workforces were thus cut by only 3,4%, thanks to the high rating of this work, but sales fell 23% in 2009. Last year the virtuous circle, which had enabled staffing levels in these companies to be increased since 2003, was broken. The outcome was that job growth took place only in companies involved in the water cycle (+10% compared to 2008) and knowledge and research (+3,3%). In the area of urban waste it fell by 13,2%.
- The true scale of the industry is underestimated as the majority of those employed by governments, universities, research centres, foundations, not-for-profit organisations and small consultancy, environmental education and business services companies are not counted. This is because it is hard to survey them and, more importantly, to fit them into standardised occupational categories. That is the case for the 291 researchers registered at Catalan research centres just in the area of the biology of organisms and systems, and for the 2.953 workers registered at the Government of Catalonia’s Department of the Environment and Housing (including related companies and agencies).
- The environmental activities with the most positive employment prospects are energy efficiency and renewable energy, activities aimed at cutting greenhouse gas emissions and adapting to the impact of climate change, sustainable construction and waste management.

Sources. Latest data available: Spanish Ministry of Agriculture, Food and the Environment; Spanish Public Employment Service’s Subdirectorat-General for Technical Services; Spanish Association for Standardisation and Certification (AENC), Biodiversidad Foundation, Spanish Sustainability Observatory and Fòrum Ambiental Foundation; Industrial Organization School (EOI).

⁴ Data from the Ministry of Agriculture, Food and Environment.

⁵ Green Jobs for a sustainable development. The Spanish case. SustainLabour in collaboration with the Biodiversidad Foundation.

05 Professional profiles most in demand

Most highly qualified professional profiles

Training profile

There is demand for a very wide range of more qualified professionals because of the diversity of the jobs existing within the industry. The most important professional profiles are graduates (in chemistry, environmental sciences, etc.) and engineers (chemical, industrial, etc.).

As a general rule, positions in the industry require a high level of specialisation in certain aspects of the environment (for example, in the fields of water or waste), so companies tend to run initial, continuous and occupational training plans for each specific position.

However, according to the report *Empleo y formación en el sector del Medio Ambiente en España* (Employment and Training in the Environment Industry in Spain), companies also state that general environmental education is required in addition to specialist training due to the multidisciplinary nature of this industry. Below are the most important aspects that professional profiles in the industry need to know: environmental applications in general; waste treatment techniques; water treatment techniques; environmental management systems (obligatory training for companies certified for an environmental management system and for all industry companies in general); environmental impact or evaluation studies; prevention techniques; environmental auditing of production processes and quality management; environmental legislation; management models; saving measures; public dissemination and communication of environmental processes; simulation models; spatial planning and management; decision-making models for evaluating alternatives, etc.

Skills profile

These professionals need the ability to manage their own work and take the initiative, as they work in areas that require immediate decisions; they need the capacity for analysis and communication; the ability to command and manage; the capacity to negotiate; organisation; writing skills; the power to persuade; the ability to solve problems or propose solutions; a sense of responsibility; and the ability to work as part of a team, as they often are responsible for giving orders to and managing people.

Examples of jobs in the web Barcelona Treball directory

- ✓ [Expert for an Environmental Control Agency \(EAC\)](#)
 - ✓ [Expert in the integrated management of coastal systems](#)
 - ✓ [Expert in waste recovery](#)
-

Less qualified professional profiles

Training profile

The growth of the sector and its use of very advanced technology have led to the need to incorporate specialised profiles at lower levels, which has made it necessary to increase the training levels of the industry's less qualified professional profiles. It is therefore crucial to make them increasingly specialised using training courses created for the purpose. However, two types of less qualified professional profiles can be distinguished:

- Workers with basic, specialised training in the work they do, especially in the area of waste and water.
- Experts with medium-level and higher vocational qualifications (such as specialist grade 1 in environmental chemistry, analysis and monitoring, managing and organising natural and landscape resources and in forestry and environmental conservation work). These professionals are increasingly important.

It is also essential, to a greater or lesser degree, to have general qualifications, especially for companies in the water and waste industries.

Skills profile

These professionals often work outside and also tend to operate tools and machinery. They therefore need to be in good shape physically in order to work in awkward positions and, if necessary, under adverse weather conditions. They also require manual dexterity, creativity and the ability to plan and to solve problems.

Examples of jobs in the web Barcelona Treball directory

- ✓ [Park ranger](#)
 - ✓ [Ecological gardener](#)
 - ✓ [Selective land clearance operative](#)
-

06

Future scenarios

Weaknesses

- The future prospects for the environment industry are not very clear. Despite economic and political changes, the government and the public need to increase their concern for the environment.
- With the goal of achieving balance between production sectors, Spain needs to apply environmental criteria in all areas and limit unwarranted construction activity in order to preserve natural spaces.
- Water shortages could lead to conflicts between its agricultural, industrial and domestic use. Pollution of fresh and coastal waters must be limited, as must its overexploitation.
- The difficulties faced by micro, small and medium enterprises in moving into foreign markets because they do not know about the necessary procedures and find it hard to locate local partners abroad.
- The increased cost of production when environmental quality standards are applied.
- Revenues in Spain from environmental taxes (with regard to GDP) are low in comparison to EU countries (according to 2010 data).
- Spain is one of the countries that have more deviations in the compliance of commitments under the Kyoto Protocol in terms of reducing gases. In 2012 Spain had to deal with payments ranging between €1.170 and €1.620 million for purchasing emission of CO₂. Spain could only increase a 15% of CO₂ emission during the 2008-2012 period in relation with 1990, but at the ending period, the increase in the number of emissions stood at 22,8%.
- In Spain, the study Green Jobs for a Sustainable Development prepared by SustainLabour, there is no national strategy aimed at meeting the educational needs of the traditional sectors of the economy to facilitate the transition towards a new model of production based on the principles of respect for the environment and green economy.
- 70% of companies (many consulting and advisory) live of government contracts. Therefore, according to the Environmental Forum Foundation, these companies must find other strategies, such as search for foreign markets as the best formula to ensure future growth. Now, 90% of sales are made in Spain. In this sense, there is currently a strong dependence on public sector contracts, on aid and on economic incentives.
- It is detected a demand of qualified profiles in the environmental sector, which grows faster than the number of people with technical skills. Also is detected a lack of training offer to promote specialization in the sector.

Threats

- The economic crisis and high public debt cause a break in the promotion of green economy policies. The removal of subsidies and tax incentives hinder the needs of growth and consolidation in the sector. This can lead to the loss of some jobs that have been created in recent years.
- In Spain there is a high dependence on foreign technology explained by an insufficient system of R&D in the environmental sector.
- Activities dependent on public procurement and promoting, such as care for the environment, will have a difficult time. By contrast, eco-efficient technology areas including capital goods and green energy will continue to grow. Sectors that are able to innovate and evolve towards more efficient products and services will have greater job-generation capacity and be more competitive.
- In 2009, Spain's population was 46,7 million, 78,9% of which lived in population centres with 10,000 inhabitants or more. This process of urbanisation is an established trend and calls for policies that meet the numerous challenges it poses. To that end, the Spanish Urban and Local Sustainability Strategy (EEUSL) has been drawn up to encourage towns and cities to take on board the requirements of sustainable development.
- Economic development in recent years has increased industrial activity and the carriage of hazardous goods,

especially in countries like Spain that are highly energy-dependent.

- The area of forest affected by fire in 2010 was 63,3% lower than the average for the previous ten years. The wooded area affected also recorded a significant decrease of 73,9%
- Low consumer awareness about the importance of sustainable consumption of products made using sustainability standards and the consumption of natural resources.

Strengths

- The number of administrative and criminal offences reported by the Civil Guard's Nature Protection Service (SEPRONA) decreased by 11.4% in 2007-2008; forest fires were the most reported offence. The number of arrests declined by 9.8% over the same period. Despite the general decrease, arrests for offences related to wildlife increased by 53.3%.
- For a number of years the Spanish economy has been showing a trend towards declining energy consumption per unit of GDP, in line with the general European trend. Increased energy efficiency, the increased importance of renewable energy and the decline in economic activity have contributed to this decrease.
- According to Eurostat, per capita urban waste generation in Spain has been in general decline since 2003, moving closer to the EU average.
- The industrial sector has become significantly more eco-efficient compared to previous years. While gross value added for the sector grew by 7% in 2006-2008, end energy consumption remained stable and the sector's emissions decreased by 7.3%.
- Spain and Catalonia are areas with geographical and climatic conditions that are favourable for the development of the sector.
- The area of protected areas in 2010 accounted for 27.7% of the total land area of Spain, while the area of forests continues to grow at an average rate of 0.7% per year and is now over 18 million hectares.
- The good image of products manufactured taking into account sustainability and environmental quality standards.
- The job prospects in the industry are good: the engine of the green economy is wide and there is a wide environmental regulation that contributed to the increase in goods and services, and thus job creation. In addition, there is a greater awareness on the part of businesses and population, and the public sector has made a high investment.
- A study on the impact of climate change at work (The impact of climate change on employment) made by the International Labour Organization in 2011 notes that Spain together with Germany, France and the United Kingdom, are the countries that have responded to the crisis (in a initial form) by promoting measures and incentive schemes to encourage the environment industry and the green economy.
- The Spanish environment legislation, in line with European regulatory framework, is well developed, and encompasses different aspects of sustainability. This regulatory framework affects some production sectors, and it is generating organic conversion processes in production processes, such as energy use, transportation, and manufacturing products and services.

Opportunities

- The promotion of a new production model is based on three main pillars: increasing energy saving and efficiency, reducing consumption of fossil fuels in favour of low-carbon energy sources and consolidating and promoting the introduction of new technologies in all production processes; which may facilitate the transition to a green economy model.
- The commitment to the green economy and to develop favourable policies in the environmental sector are an opportunity for the Spanish economy, thus encouraging greater competitiveness, contributing to the creation of skilled jobs and quality, and helping to minimize impacts or environmental externalities of economic.
- The Sustainable Economy Act (2/2011, march 4th Sustainable Economy Act) has begun to go through the Spanish Parliament. It has specific chapters about promoting renewable energy and energy efficiency, reducing greenhouse gas emissions and sustainable transport. Spain is becoming aware of the importance that the "green economy" could have and especially in terms of jobs in environment-related activities. Specifically, the Act adopts the aim of 20% of reduction of gas emissions.
- The application of the European Union's REACH will have a major impact on the industrial sector as

companies will have to demonstrate by means of comparative studies that the chemicals used in the products they sell are harmless to the environment and to consumers' health. It is very likely that these requirements will lead to a short-term increase in epidemiological and environmental studies. They will also give rise to the appearance of new environmental technologies which will lead to the creation of jobs in the sector.

- The transposition of the Strategic Environmental Assessment Directive into Spain's Assessment of the Environmental Effects of Plans and Programmes Act 9/2006 has increased the number of consultancy studies for a wide variety of town planning projects, particularly general municipal planning and related activities. Moreover, it is estimated that the recent passing of Catalonia's Landscape Protection, Management and Organisation Act 8/2005, which is a pioneer at the European level, will generate almost one thousand reports on landscape assessment and integration per year and a lower number of actions on the ground.
- Implementing policies that promote consortiums of sector companies in order to facilitate their internationalisation, given that the small size of the sector's companies is a factor limiting investment.
- Minimizing the generation of pollutants and waste and increasing efficiency in producing, using and reusing products, as there is still a great deal to be done in these areas.
- The sector has a high consumer retention rate (around 75%), which means that it will be more stable in times of economic crisis.
- The increasing regulations and requirements in terms of sustainability and environmental responsibility expect to increase waste management services. This trend could be a great opportunity for employment environment.
- The Spanish labor market training is a major challenge and opportunity to encourage a model of a green economy. Traditional industry sectors and construction and have significant needs of restructuring, and the commitment to environmentally responsible production models are a great opportunity to improve their competitiveness. Therefore, the transformation of production processes may involve a growing demand of workers training in order to meet the skills needed.

07

Useful links

International organisations

United Nations Environment Programme

<http://www.unep.org/>

European Environment Agency (EEA)

<http://www.eea.europa.eu/>

European Commission's Directorate-General for the Environment

http://ec.europa.eu/dgs/environment/index_en.htm

Spanish organisations

Biodiversidad Foundation

<http://www.fundacion-biodiversidad.es/>

Catalan Council for Environmentally-Friendly Farming (CCPAE)

<http://www.ccpae.org/>

Fòrum Ambiental Foundation

<http://www.forumambiental.org/>

Association of Environmental Scientists of Catalonia

<http://www.coamb.cat/>

Centre for Ecological Research and Forestry Applications (CREAF)

<http://www.creaf.uab.es>

Association of Renewable Energy Professionals of Catalonia (APERCA)

<http://www.aperca.org/>

Council for Sustainable Development – Government of Catalonia

<http://www15.gencat.cat/cads/AppPHP/index.php>

International events (fairs, conferences, etc.)

International Congress on Environmental Modelling and Software

<http://www.iemss.org/iemss2008/index.php?n=Main.HomePage>

CitiesAlive - Annual Green Roof & Wall Conference

<http://www.citiesalive.org/>

Convention on Biological Diversity

<http://www.cbd.int/convention/cops.shtml>

Spanish events (fairs, conferences, etc.)

Fira Natura – Environment and Quality of Life Fair
<http://www.firanatura.ipcena.org/>

National Congress on the Environment
<http://www.conama.es/viconama/>

International themed portals

Danish Wind Industry Association
<http://www.windpower.org>

European Foundation for Landscape Architecture (EFLA)
<http://europe.iflaonline.org/>

International Centre for Coastal Resources Research (CIIRC)
http://www.upc.edu/unitat/fitxa_unitat.php?id_unitat=257&lang=ing

United Nations environment programme
<http://unep.org/un-env/>

Spanish themed portals

Association of the Spanish Photovoltaic Industry (ASIF)
<http://www.asif.org>

Ambientum
<http://ambientum.es/>

Ciencias ambientales.com
<http://www.cienciasambientales.com/es/>

Environmental forums
<http://www.forosambientales.com/foros/>

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