

# ENVIRONMENTAL RESEARCH, DEVELOPMENT AND INNOVATION



2.7

Environmental profile of Spain 2012

Among the flagship initiatives of the European strategy 2020 to achieve its objectives of smart, sustainable and inclusive growth, is the Innovation Union. The goal of this initiative is to improve the conditions and access to financing for research and development in Europe, and ensure that innovative ideas can become products and services that generate growth and employment.

The Innovation Union is focused on citizens' main areas of concern, such as climate change, energy efficiency and healthy life. Its objective is to involve all the parties and all the regions in the innovation cycle.

The 2020 Horizon is the financing instrument for its implementation. It will have a duration of seven years (2014-2020) and its goal is to simplify and support European researchers and innovators in an integrated manner. It will include the current financing programmes: Framework Program on R+D, Framework Program on Competitiveness and Innovation and the European Institute of Innovation and Technology.

In May 2011 the new Law on Science, Technology and Innovation was approved, repealing the Law on Science of 1986. This new law adapts the legislation to the great progress undergone by the Spanish scientific system over the last few years, at the same time as it facilitates a change in the



production model. This law sets out a new Spanish Strategy on Science and Technology and on Innovation 2013-2020 and a new State Plan on Scientific and Technical Research and on Innovation 2013-2016, both approved by the Council of Ministers of 1 February 2013.

The Spanish Strategy on Science and Technology and on Innovation is the framework instrument that establishes the general objectives to be achieved during the period 2013-2020, linked to the promotion and development of R+D+I activities in Spain. These goals are in line with the ones established by the EU within the new framework programme for the financing of R+D+I activities, 2020 Horizon, for the period 2014-2020. For its part, the State Plan on Scientific and Technical Research and on Innovation contains the instruments for the financing of R+D+I activities by the General State Administration during the period 2013-2016, in line with the objectives of the Spanish strategy.

The autonomous communities are in the process of designing their regional plans, conditioned by the concept of smart specialisation, established by the EU as a prior condition for receiving structural funds.

#### KEY MESSAGES

- Spain is ninth in the world in terms of scientific output in environmental sciences.
- During the period 2008-2011 Spain carried out 2,094 Research, Development and Innovation projects, with total grants amounting to 192.1 million euros.
- Environmental programmes represent 4% of the total of the General State Budget for R&D in 2013.
- 4.6% of the total grants with socioeconomic objectives are related to the environment.

#### INDICATORS

- Main bibliometric indicators within the field of the environmental sciences.
- Public subsidies for R+D+I
- Public financing for R+D

## Main bibliometric indicators in the field of environmental sciences

*In the year 2011 Spain was the ninth in the world in terms of scientific production within the field of environmental sciences*

Main bibliometric indicators in Spain

Year	Number of Documents	World %	Standardised impact (world average)	% Q1	% of international collaboration	Excellence rating	Leadership rating	Excellence rating with leadership	World ranking
2003	1,498	2.95	1.11	76.44	38.18	12.28	80.77	8.74	11
2004	1,763	3.41	1.20	78.05	33.86	12.54	82.59	9.13	9
2005	1,919	3.30	1.20	74.41	38.35	13.55	79.68	9.59	10
2006	2,299	3.53	1.26	77.99	39.63	13.83	79.86	10.09	10
2007	2,563	3.63	1.26	74.91	38.74	14.44	79.13	9.64	10
2008	2,813	3.80	1.28	71.63	40.70	13.54	78.60	8.92	10
2009	2,949	3.75	1.30	71.35	41.61	14.62	78.77	10.24	10
2010	3,078	3.87	1.30	71.09	44.54	13.22	76.67	9.00	10
2011	3,719	4.24	1.35	70.93	48.13	14.17	74.72	9.73	9

See explanation notes for the definitions.

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

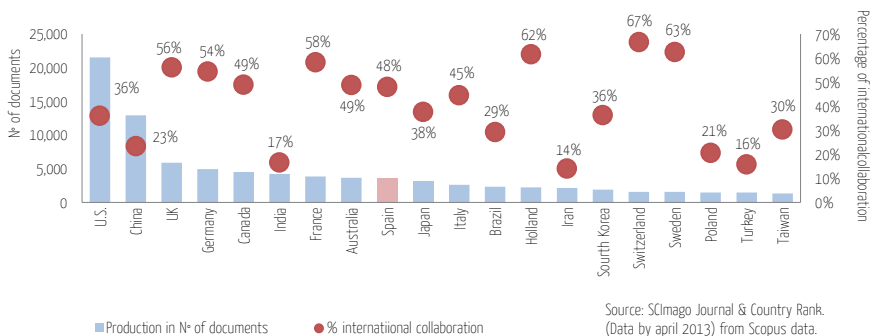
Spanish scientific production in the field of the environmental sciences increased between 2005 and 2011, from 1,919 documents per year to 3,719. For its part, the publications on environmental sciences in Spain are cited 35% more than the average world citation in the same field, while 70.93% of the documents are published in first quartile journals (Q1).

At the same time, 74.7% of the total articles on environmental sciences published in 2011 in Spain were led by a Spanish principle investigator, while the percentage of these publications rated excellent was 9.7%.

In 2011, Spain was ninth in the world ranking of scientific production, up one position with respect to 2010, and behind countries as the United States, China and the United Kingdom. Among EU countries, Spain occupied the third position behind Germany and France, and ahead of countries such as Italy, the Netherlands and Sweden.

In 2011, around 48% of the total Spanish papers were the result of international collaboration. Switzerland is one of the countries with most publications arising from such international collaboration (67% of the total), together with Sweden and the Netherlands.

Scientific production in the 20th first countries concerning environmental science production. Year 2011  
Number of documents and percentage of international collaboration



## NOTES

- Number of documents: total number of published documents in SCOPUS index journals.
- Standardised impact: the values (in %) show the relationship between the average of the scientific impact of a country or institution compared to the world average (that has a rating of 1); therefore, an IN of 0.8% means that the country or institution is mentioned 20% less than the world average, while a IN of 1.3% means that is mentioned 30% more than the world average.
- High quality publications (% Q1): indicates what percentage of publications of an institution in the magazines are in the first quartile (25%) in its category, ordered according to the quality indicator magazines SJR (SCImago Journal Rank).
- Excellence rating: indicates what percentage of scientific publications of a country or institution is included in the total 10% of the most mentioned articles in its field. It is an indicator of high quality investigation.
- Leadership rating: indicates the percentage of the production of a country or institution as lead contributor, that is, the number of documents in which the main author belongs to that country or institution.
- Excellence rating with leadership: is the synthesis of the two previous indicators and makes reference to the works led by a certain country or institution, and that additionally corresponds to the total production that is in the 10% that is most often mentioned in its category and year.
- World ranking: position in the world ranking according to the production volume.

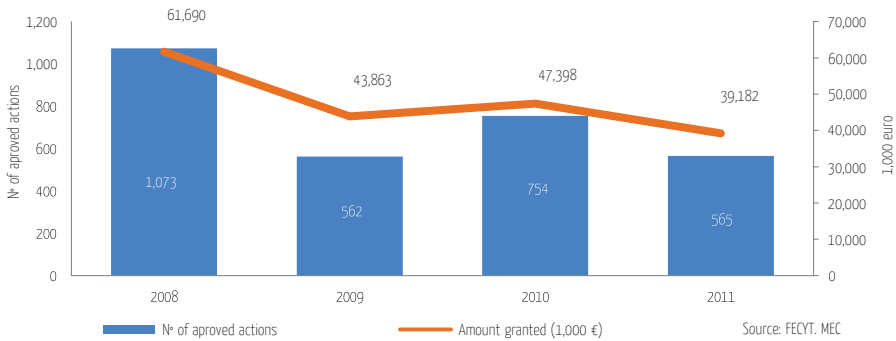
## SOURCES

- SCImago Journal & Country Rank. (Consulted in April 2013) from Scopus data.

## Public subsidies for R+D+I

During the period 2008-2011 Spain carried out 2,094 R+D+I projects, with total grants amounting to 192.1 million euros

Number of actions approved and amount granted in R+D+I



The data presented makes reference to the old R+D+I National Plan 2008-2011 and to the Innovation State Strategy (e2i) that formed the strategic framework within which the R+D+I activities of the State General Administration (SGA) was developed in that period. The national plan was the tool through which the SGA carried out promotion, coordination and planning activities for scientific and technical research in Spain. For its part, the Innovation State Strategy was the government's policy framework of innovation for contributing to the change of the production model in Spain, through the promotion and creation of structures that would facilitate the best use of scientific knowledge and technological development.

The graph shows the number of actions and financing granted by all the programmes run by the Ministry of Agriculture, Food and Environment, the National Institute of Agriculture and Food Technology and the Centre for Energy, Environmental and Technological Research; this also includes the 'Experimental development projects for the environment and eco-innovation' run by the Centre for Industrial Technological Development.

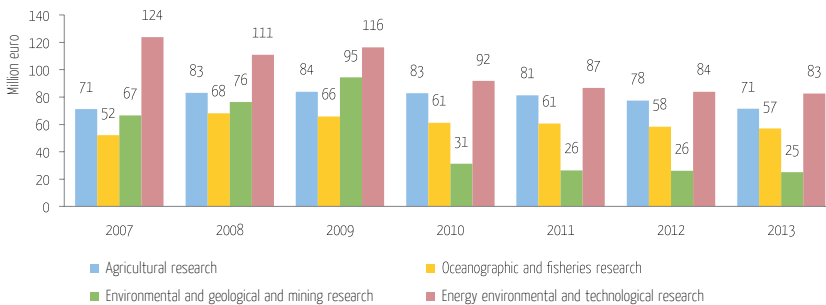
During the period 2008-2011 a total of 2,094 projects were involved with a total amount granted of 192.1 million of euros, of which 565 projects and 39.2 million euros correspond to 2011.



In 2013 environmental programmes represented 4% of the total of the State General Budget for R+D+I. Expenditure Policy Programmes 46 are considered as environmental projects. These include the following: 467D Agricultural Research and Experimentation; 467E Fisheries and oceanography research; 467F Geological-mining and environmental research; and 467H Energy, environmental and technological research. These four groups of programmes represented 4% of the total R+D+I budget in 2013, with this percentage remaining stable with respect to 2012.

When analysing the evolution of the R+D+I budget in the environment programme, it can be seen that there is a higher budget for energy, environmental and technological research, followed by the agricultural research and experimentation, Fisheries and oceanography research and finally, geological-mining and environmental research.

Budget In R&D Programme 2007-2013



Source: Ministry of Finance and Public Administration, State Budget.

#### NOTES

- This includes all programmes run by the Ministry of Agriculture, Food and Environment, the National Institute of Agriculture and Food Technology and the Centre for Energy, Environmental and Technological Research; this also includes the 'Experimental development projects for the environment and eco-innovation' run by the Centre for Industrial Technological Development
- The amount corresponds to the multiannual expenditure commitment.

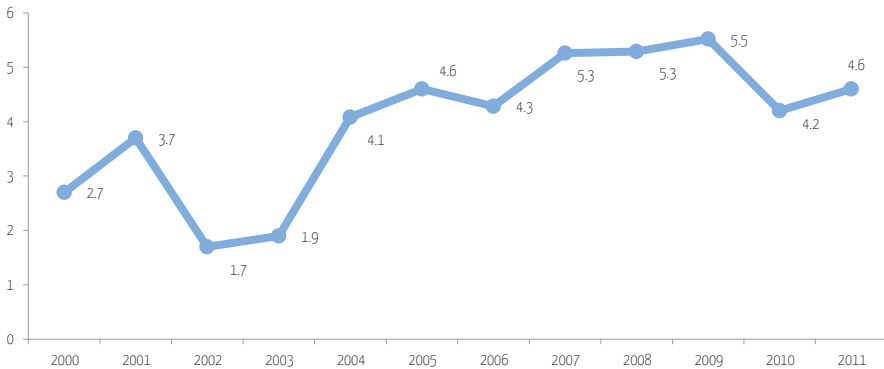
#### SOURCES

- Prepared by the Metrics Department of the Spanish Science and Technology Foundation from the data provided by the different organising bodies. Ministry of Economy and Competitiveness.
- Data of the R+D+I budget from the Ministry of Finance and Public Administrations, State General Budget.

## Public financing for R+D+I

*In 2011, 4.6% of initial grants with socioeconomic objectives are related to the environment*

Distribution of the final credit by environmental socioeconomic objective (%)



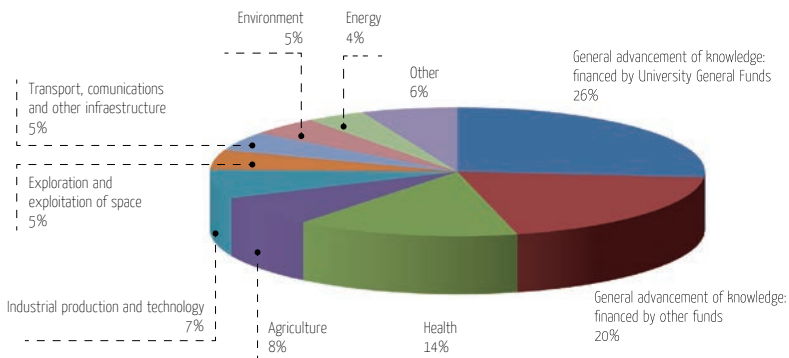
Source: Ministry of Economy and Competitiveness.  
Statistics on government budget appropriations for R & D (GBAORD).

The public financing for R+D+I known as GBAORD Statistic (Government budget appropriations or outlays for R&D), has the goal of determining the financing resources that the Public Administrations- central and regional- allocate for R&D activities. It also aims to understand to which socioeconomic objectives governments are orienting their R&D financing policies; to achieve this, the statistics include the budget, identified by NABS socioeconomic objectives (Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets), the official classification proposed by the EU.

For many years this has been included in the National Strategic Plan and its execution is framed within the statistical information requirements of the OECD and Eurostat. It is carried out by the State Secretariat of Research, Development and Innovation of the Ministry of Economy and Competitiveness.

The indicator shows the distribution of initial credits by socioeconomic objective according to the nomenclature for the analysis and comparison of scientific programmes and budgets, and the evolution of the environmental socioeconomic objective from the year 2007. Of the total final credits, 5% per socioeconomic objective relates to the environment, a percentage that has increased with respect to the year 2002, when it represented 1.7% of the total distribution of the final credits.

Breakdown of final credits by socioeconomic objective (%). Year 2011



Data in NABS base: Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets (GBAORD, EUROSTAT, 2007).

Source: Ministry of Economy and Competitiveness

#### NOTES

- FGU: University General Funds

#### SOURCES

- Ministry for Economy and Competitiveness. Statistic on R+D public budget credits (GBAORD).

