Spanish National Research Council

MAY 2014
Le Système De Recherche PUBLIQUE en Espagne :
CPIs : Centres publiques de Investigación (recherche)

- Universités (60-70)
- Quelques centres locaux et/ou sectorielles du Gouvernement central ou Régional
  - Réseau CERCA (ICN2, ICFO, IQ Tarragona, …)
  - CENIC
  - CENIO, …
- OPIs (Organismes Publiques de Investigación)
  
  Sectorielles
  - INIA (Agroalimentaire)
  - IEO (Océanographie et bio marine)
  - IGME (Géologie et mines)
  - CIEMAT (ex nucléaire, environnement et énergie)
  - INTA (Aéronautique et l’espace)
  - ISC III (Biomedicine) ….

  Multidisciplinaire
  - CSIC (Consejo Superior de Investigaciones Cientificas)
The Spanish National Research Council
CSIC

- The largest public Research Organisation in Spain: 6% of CPI scientist, produces 20% of knowledge (measured in terms of scientific papers)

- Devoted to multidisciplinary scientific and technological research

- Assigned to the Ministry of Economic Affairs and Competitiveness

- CSIC is not a “Council” in the sense of having economic money to Fund internal and/or external research projects
• **Mission:**
  - Multidisciplinary Scientific and Technological Research
  - Transfer of knowledge and technology
  - Scientific and technical personnel training
  - Management of infrastructures

• **Organisation:**
  - Network of 123 Institutes
    (including 53 Joint Centres with other Institutions)
  - 118 Associated Units

• **Collaboration with:**
  - Universities
  - Other public R&D Organisations
  - Companies, Professional Associations and Foundations
  - Regional Governments
123 Institutes and Centres

70 CSIC-ONLY CENTRES / 53 JOINT CENTRES

8 SERVICE CENTRES

118 ASSOCIATED UNITS

**SCIENTIFIC AREAS**

1. HUMANITIES AND SOCIAL SCIENCES
2. BIOLOGY AND BIOMEDICINE
3. NATURAL RESOURCES
4. AGRICULTURAL SCIENCES
5. PHYSICAL SCIENCE AND TECHNOLOGY
6. MATERIALS SCIENCE AND TECHNOLOGY
7. FOOD SCIENCE AND TECHNOLOGY
8. CHEMICAL SCIENCE AND TECHNOLOGIES
8 SCIENTIFIC AREAS
123 CENTRES AND INSTITUTES

15,545 TOTAL PEOPLE
11,394 TOTAL CSIC’S OWN STAFF

March 2014

Scientific staff 3,949
Technician 6,132
Administration 1,313

3,104 RTD Projects and Actions (ongoing), funded with 611.8 €M

- 2,647 National Programmes, amounting to 433.7 €M
- 457 European Projects, amounting to 178.1 €M

During 2013

4,795 RTD Contracts and Agreements, funded with 58.1 €M

During 2013
Large Infrastructures (ICTS)

National and international based, open access to international community researchers

International researchers / Countries

Antarctic Research Station Juan Carlos I
16 / 3

Calar Alto Astronomical Observatory
21 / 9

Ocean Research Vessel Hesperides
17 / 7

Integrated Microelectronics Cleanroom
24 / 12

Doñana Biological Reservation
91 / 14

Oceanographic Vessel Sarmiento de Gamboa
24 / 8
2013 INCOMES (€M)

- 162.5 Competitive funds
- 507 Government Funds
- 692.7 Total
  Includes 95 M€ Extra
- 23 ESF/ERDF*
- 33.6 Other Resources (*"Ramanentes",...)

2013 EXPENDITURES (€M)

- 69% Hunam resources
- 26% General expenses
- 5% Investment

(*) ESF: European Social Fund. ERDF: European Regional Development Fund.
At European level, CSIC is ranked 6th fundingwise.
Output during 2013

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
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<tr>
<td>ARTICLES</td>
<td>12,710</td>
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<tr>
<td>BOOKS</td>
<td>195</td>
</tr>
<tr>
<td>PhD THESES</td>
<td>887</td>
</tr>
<tr>
<td>PRIORITARY PATENTS</td>
<td>137</td>
</tr>
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</table>

- CSIC represents the 45% Spanish participation in Nature & Science (2008-2012)
- CSIC with 6% Spanish scientific staff produces 20% of papers

Growth over the period 2004-2013 of the number of contracts and agreements in effect between the CSIC and companies and institutions and the (annualised) funding committed in them.
Knowledge transfer during 2013

**4,795** Contracts and agreements with companies and institutions (**58.1€M**)

| 137 | Priority patent applications |
| 94  | International patent applications |
| 83  | Explotation licence contracts |

**85** Technological Based Enterprises

**450** Patents portfolio

Number of Spanish and international PCT patent applications and licence contracts over the period *

*85% granted to Spanish companies and 14 % to foreigns companies: Alemanía, Argentina, Bélgica, EE.UU., Francia, Italia y Luxemburgo*
R&D State Budget: P 46

M€


5.190 5.486 5.699 5.196 3.749 5.932 6.146

4.147 4.176 3.572 3.390 2.642 2.268 2.413

2.000 4.000 6.000 8.000 10.000 12.000

2008 2009 2010 2011 2012 2013 2014

F46
Financiero (cap8-9)
No financiero (cap1-7)
Graduate + Master
CSIC Programme introduction to research 3-6 months

Doctoral

JAE Program
Started in 2007-8
Provides Fellowships and contract for:
  - Introduction to R&D
  - Predoc
  - Techniciens
  - Doctors
  - Drs dedicated to transfer

FULLY FINANCED BY CSIC FUNDS!!!

Postdoc

Permanent position at CSIC Civil Servant (Calls, competitions)
The economic problems in CSIC

Consejo Superior de Investigaciones Científicas

The economic problems in CSIC
CSIC Present scientific career

Graduate + Master → CSIC Programme introduction to research 3-6 months

Doctoral Thesis → at CSIC

- Fellowships / contracts Predoc
- FPI (MINECO)
- FPU (MECD)

Postdoc → at CSIC (or related to CSIC)

- Contrato O. y S. (proyect)(CSIC): aprox 3 years
- Stage exterior (abroad) (MECD-Exterior): 2 - n years
- Juan de la Cierva Programme (MINECO): 3 years
- Postdoc Training Programme (MINECO): 2 years
- Postdoc Programme (MINECO): 2 years
- Ramon y Cajal Programme (MINECO): 5 years + Grant

No dismissals
Freeze own calls
Minimice core damage
RED LINE
## CSIC Human Resources

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</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL CSIC STAFF</strong></td>
<td>13,756</td>
<td>14,050</td>
<td>14,172</td>
<td>13,562</td>
<td>12,321</td>
<td>11,115</td>
<td>11,394</td>
</tr>
<tr>
<td><strong>STAFF AT OTHER INSTITUTIONS IN CSIC CENTRES</strong></td>
<td>4,672</td>
<td>4,605</td>
<td>4,383</td>
<td>3,769</td>
<td>2,610</td>
<td>976</td>
<td>4,151</td>
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<tr>
<td><strong>TOTAL STAFF IN CSIC CENTRES</strong></td>
<td>18,428</td>
<td>18,655</td>
<td>18,555</td>
<td>17,331</td>
<td>14,931</td>
<td>12,091</td>
<td>15,545</td>
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<tr>
<td><strong>Scientists</strong></td>
<td>5,419</td>
<td>5,375</td>
<td>4,433</td>
<td>4,368</td>
<td>4,186</td>
<td>4,198</td>
<td>3,949</td>
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<td></td>
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<td></td>
<td>(CSIC: 3,060)</td>
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<tr>
<td><strong>TOTAL CSIC STAFF</strong></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Civil servant</td>
<td>5,862</td>
<td>5,885</td>
<td>5,858</td>
<td>5,879</td>
<td>5,610</td>
<td>5,464</td>
<td>5,600</td>
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<td>Employment contract</td>
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<td>1,246</td>
<td>1,268</td>
<td>1,151</td>
<td>1,096</td>
<td>1,045</td>
<td>1,203</td>
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<tr>
<td>Contracted</td>
<td>5,547</td>
<td>5,815</td>
<td>5,683</td>
<td>5,097</td>
<td>4,334</td>
<td>3,316</td>
<td>4,266</td>
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<tr>
<td>Fellowship</td>
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<td>1,104</td>
<td>1,363</td>
<td>1,435</td>
<td>1,281</td>
<td>1,290</td>
<td>325</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>13,756</td>
<td>14,050</td>
<td>14,172</td>
<td>13,562</td>
<td>12,321</td>
<td>11,115</td>
<td>11,394</td>
</tr>
</tbody>
</table>
FP7
Applications  >3,000
Signed contracts  724
Success rate  24%
Funding  300,3 €M

Other non FP7 calls
(CIP, INTERREG, LIFE, RFCS...)
Signed contracts  >400
The objective is to promote the internationalization of CSIC activities through:

- Staff exchanges
- Joint research projects and networks
- Joint supervision of Master and PhD students
- Joint thematic workshops

with foreign institutions around the globe

...in a new global situation

CSIC programmes have been adapted to the new circumstances:

- Bilateral relations with European institutions in the framework of the EU
- Involvement of technological centers and companies as actors
- Restrictions in the resources to maintain many isolated bilateral programmes
- New principles of co-responsibility and co-funding in the cooperation with developing countries
- Increasing need of specialized training in emerging countries
From bilateral programmes...

<table>
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<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
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<td>projects</td>
<td>132</td>
<td>45</td>
<td>29</td>
</tr>
<tr>
<td>countries</td>
<td>16</td>
<td>9</td>
<td>5</td>
</tr>
</tbody>
</table>

...to joint workshops

- Joint Workshop Chinese Academy of Social Sciences
  ‘Social Inequality in China and Spain in the time of Globalization’
- Opening Doors CSIC-British Council
  ‘Feeding the future’
- 1st Joint CSIC-CNR workshop
  ‘Nanotechnology and energy’
- 2nd Joint CSIC-CNRS workshop
  ‘Understanding of biological diversification’

Active bilateral actions in 2014:
- CNPq (Brazil)
- RGC Honk Kong
- CITMA (Cuba)
- VAST (Vietnam)
- CNRS (France)

...to large general programmes

i-LINK+; i-COOP+
i-LINK: Programme for the promotion of scientific international collaboration.
Exchange of researchers without any geographical or thematic restrictions

31 active projects (2014)

http://www.csic.es/web/guest/i-link

i-COOP: Programme for scientific cooperation in developing countries.

22 active projects (2014)

http://www.csic.es/web/guest/i-coop

From i-LINK and i-COOP...

...to i-LINK+ and i-COOP+
+: adding the participation of companies
+: adding the co-funding of foreign partners

From i-COOP...
exchange visits

...to i-COOP+
specialized training

to i-COOP-H₂O (2013); i-COOP-AgroFood (2014);
full projects on a specific thematic
Present priority regions for CSIC internationalization actions

- Collaborations to implement international networks of scientific excellence
- Scientific cooperation in developing countries
International Laboratory for Global Change Research

Research Groups: 16 CSIC, 12 Pontificia Universidad Católica de Chile
Open for the integration of new institutions

TRAINING ACTIVITY
YEARLY SUMMER SCHOOL
around 40 Students

Las Cruces, Chile

http://www.lincg.uc-csic.es/
Annual programme funding research visits to Huinay (Patagonia-Chile)

AXA Chair on adversarial risk analysis

Prof. David Ríos
CSIC, which has a collaboration framework agreement with the Moroccan CNRST, participates in several initiatives:

**Jumelage institutionnel Maroc & France-Espagne** (ended 2013)

**Spain-Morocco working groups.** Set up in 2012 by the research state secretaries of both countries to promote the scientific collaboration in topics of common interest (natural resources, solar energy, forestry, agriculture and food)

**Partner countries:**
Algeria, Cyprus, Egypt, France, Jordan, Greece, Germany, Italy, Lebanon, Malta, Morocco, Portugal, Tunisia, Turkey, Spain

**Duration**
4 years (October 2013- September 2017)

Enhance Euro-Mediterranean co-ownership through innovation and competitive research
Increase coordination among national research programmes of Mediterranean Partner Countries.
The ERANETMED will consider actions to enhance innovation through applied research, capacity building, mobility and clustering.

**CSIC and Morocco**

CSIC, which has a collaboration framework agreement with the Moroccan CNRST, participates in several initiatives:
CT: Científico Titular (eq. Profesor titular de Universidad)
IC: Investigador Científico (eq. Profesor Agregado Universidad -OBSELETO)
PI: Profesor de Investigación (eq. Catedrático Universidad)

10-may-14

<table>
<thead>
<tr>
<th>Nivel Inv</th>
<th>Segto. edad</th>
<th>Numero</th>
<th>Edad min</th>
<th>Edad max</th>
<th>Edad media</th>
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<td>Todos</td>
<td>1.458</td>
<td>33,57</td>
<td>69,90</td>
<td>49,00</td>
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<td>edad &lt;44 a</td>
<td>382</td>
<td>33,57</td>
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<td>44 &lt; edad&lt; 55</td>
<td>768</td>
<td>44,00</td>
<td>55,00</td>
<td>48,50</td>
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<td>edad &gt; 55 a</td>
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<td>55,00</td>
<td>69,90</td>
<td>60,60</td>
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<td>IC</td>
<td>Todos</td>
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<td>37,75</td>
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<td>37,75</td>
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<td>490</td>
<td>44,16</td>
<td>55,00</td>
<td>50,16</td>
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<td>55,00</td>
<td>70,00</td>
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<td>3.060</td>
<td>33,57</td>
<td>70,00</td>
<td>52,70</td>
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CSIC Researchers
age pyramid
(civil servants)

Average age of
researchers’ entry at CSIC
Average age and number of civil servant researchers. (if CSIC doesn’t hire new staff) *(May 2014)*

Simulation model: new researcher positions vs average age evolution *(Nov 2013)*
Most relevant areas in this respect are

- Biology/Biomedicine
- Physics
## CSIC: new positions created (pre, postdoc and permanent)

<table>
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<tr>
<th>NEW POSITIONS/year, within the scientific career</th>
<th>Stands for</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
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<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014 (provsl)</th>
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<tr>
<td>JAE intro</td>
<td></td>
<td>350</td>
<td>350</td>
<td>350</td>
<td>150</td>
<td>100</td>
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<tr>
<td>Pre-doctoral</td>
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<tr>
<td>FPI</td>
<td>4 years</td>
<td>155</td>
<td>325</td>
<td>171</td>
<td>195</td>
<td>177</td>
<td>203</td>
<td>223</td>
<td>247</td>
<td>268</td>
<td>248</td>
<td>249</td>
<td>262</td>
<td>290</td>
<td></td>
</tr>
<tr>
<td>FPU</td>
<td>4 years</td>
<td>85</td>
<td>122</td>
<td>118</td>
<td>124</td>
<td>66</td>
<td>122</td>
<td>114</td>
<td>110</td>
<td>59</td>
<td>61</td>
<td>63</td>
<td>149</td>
<td></td>
<td></td>
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<tr>
<td>JAE PRE</td>
<td>4 years</td>
<td>262</td>
<td>290</td>
<td>310</td>
<td>302</td>
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<tr>
<td>Post-doctoral</td>
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<tr>
<td>JdlC</td>
<td>3 years</td>
<td>72</td>
<td>75</td>
<td>87</td>
<td>75</td>
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<tr>
<td>JAEDOC</td>
<td>3 years</td>
<td>213</td>
<td>258</td>
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<td>186</td>
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<tr>
<td>MINECO Postdoctoral Res. Performing</td>
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<tr>
<td>MINECO Postdoctoral Res. training</td>
<td>2 years</td>
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<tr>
<td>RyC</td>
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<td>135</td>
<td>190</td>
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<td>50</td>
<td>29</td>
<td>40</td>
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<tr>
<td>Permanent position</td>
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</tr>
<tr>
<td>CTs</td>
<td>Indef (civil servant)</td>
<td>250</td>
<td>202</td>
<td>50</td>
<td>26</td>
<td>30</td>
<td>22</td>
<td>5</td>
<td>24</td>
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<tr>
<td>ID</td>
<td>Indef (Renovable 5 y.)</td>
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<tr>
<td>Total (Res)</td>
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<td>582</td>
<td>479</td>
<td>201</td>
<td>325</td>
<td>352</td>
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<td>1.208</td>
<td>1.078</td>
<td>907</td>
<td>726</td>
<td>388</td>
<td>194</td>
<td>41</td>
</tr>
</tbody>
</table>
CSIC : new positions created (pre, postdoc and permanent)
• New category “INVESTIGADOR DISTINGUIDO”
• Created by law Ley de la Ciencia (14/2011)
• Characteristic of this new category?
  o Similar to the civil servant scientifics
  o Periodically evaluation
  o Three levels of possible promotion after review schemes