

National Commission for Scientific
and Technological Research - CONICYT

Science and Technology for CHILE

Science
changes our lives

Photo: Courtesy of CERN

45
Aniversary
CONICYT



CONICYT
Ministerio de Educación

Gobierno de Chile



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2012: A good year for SCIENCE

In order to become a developed country, Chile requires a science and technology system that is solid, sustainable, competitive, and globally focused. In this perspective, progress made last year is significant. In 2012, CONICYT's budget was over USD 500 million, the highest in its history, and almost three times the 2008 budget.

Reaching higher levels of expenditure in R+D in proportion to GDP (which is currently 0.5%) implies an urgent increase in the number of scientists who can lead research projects. In December 2012, there were more than 5,300 graduate CONICYT fellows, and 930 of them obtained their doctorate fellowships last year.

In 2013, the FONDECYT Program, which is the cornerstone of Chile's scientific-technological platform and of our universities' graduate programs, will fund a record number of almost 2,800 active projects in all areas of knowledge. Of these projects, the number of post-doctoral programs -that are key to launch a researcher's career- is almost three times as high as in 2010. The contributions to solve scientific and technical problems, with the purpose of making original ideas become productive endeavors and solutions for social or public problems, will be represented by more than 100 applied science projects in health and productive areas.

We established six new associative research centers that will bridge gaps in priority issues for Chile, and will address opportunities for the country in different areas, with a multi-disciplinary approach. Each center will receive an average of USD 8.2 million per year for five years. In 2013, there will be another competitive call for four new centers. This associative research effort is added to the support that is provided to smaller groups involved in S&T, Antarctic science, and social sciences and the humanities. CONICYT's Regional Program increased support for its 14 centers that contribute their knowledge in areas that are defined as strategic within each of the country's regions. Efforts to integrate Chilean science into international knowledge networks became strengthened with new joint projects that included the United States, Germany, and China, and new possible interaction with India. In an unprecedented development, the main CONICYT programs for scientific funding were assessed positively by a group of international experts. Moreover, we provided the community with a new independent study on the main scientific productivity figures, confirming that our country has the best indicators of scientific-technological productivity in Latin America.

But in experimental research, not only trained minds are necessary.

Access to modern equipment and to sources of scientific information is essential. For the first time, CONICYT funded 47 scientific equipment projects -at an average of USD 200,000 each- and assumed the total cost of having access to the most important scientific journals.

The attraction that young people feel for science brought together over 1,400 students from the 3rd year of high school, who participated in 10 national and regional Chile VA! camps, an experience that helps them to establish closer ties with national scientists and research. But this is not all, in 2013, CONICYT will have new facilities in Santiago's Barrio Cívico.

For 45 years, CONICYT has created the capacity to envision future scenarios that will require a broad and solid S&T base, but the comprehensive and inclusive integration of our country in the knowledge society demands even stronger efforts.



José Miguel Aguilera Radic
President of CONICYT





IMAGINACHILE

National
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CAPITAL

Santiago

PRESIDENT

Sebastián Piñera Echenique

POPULATION

16,634,603

Source: Instituto Nacional de Estadísticas. Censo 2012.

SURFACE

756.096 km²

CURRENCY

Chilean peso

2012 GDP

USD 268.27 billion.

Source: International Monetary Fund (FMI), World Economic Outlook Database, October 2012. Current prices.

EXPORTS

Mining sector: Mainly copper, but also iron ore, nitrates, precious metals, and molybdenum.

Industrial sector: Mainly dedicated to food processing (juices and canned fruit, canned fish, salmon, and trout). Chile also exports wood products (paper pulp and furniture) and wine, besides fresh fruit and agricultural goods.



CHILE in NUMBERS

National
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Chile is located in the western southern tip of South America, between the Andes Mountains and the Pacific Ocean. Neighboring countries are Argentina, Bolivia, and Peru.

MAJOR MARKETS

China, United States, Japan, The Netherlands, South Korea, Italy, Brazil.

MAJOR SUPPLIERS

United States, China, Brazil, Argentina.

MEMBERSHIP IN INTERNATIONAL ORGANIZATIONS

OECD (since 2012)/ United Nations / OAS / IADB / APEC / Rio Group / ALADI / OLADE / P4 / OEI / CIN / Unasur / WTO / G-77 / WHO. Chile is also an associate member of MERCOSUR.

INTERNATIONAL RESEARCH AND DEVELOPMENT CENTERS BASED IN CHILE THROUGH INNOVACHILE

- Fraunhofer (from Germany) - Biotechnology
- CSIRO (from Australia) - Mining
- INRIA (from France) - Applied Mathematics
- Wageningen (from the Netherlands) - R&D in food industry

NUMBER OF ADVANCED RESEARCH CENTERS SUPPORTED BY CONICYT

- CONICYT finances 37 research Centers.
- 14 Regional Centers
- 13 Basal Centers
- 8 FONDAP Centers
- 2 Education Centers

NUMBER OF STUDENTS IN GRADUATE DEGREE AND GRADUATE DIPLOMA / CERTIFICATE PROGRAMS 2012

41,103 and 20,920, respectively.

Sources: Chile's Higher Education Information Service (SIES) January 2013, Ministry of Education.

ISI PUBLICATIONS IN 2012

6,760 ⁽¹⁾

Sources: Based on information from Thomson Reuters, Web of Science. 15 February 2013.

CITATION AVERAGE ON ISI PUBLICATIONS (2007-2011)

4.07

Sources: Based on information from Thomson Reuters, Web of Science. 15 February 2013.

NUMBER OF FONDECYT RESEARCHERS

4,559 ⁽²⁾

FONDECYT RESEARCHERS FOR EVERY ONE THOUSAND INHABITANTS
0.28

FOREIGN INVESTMENT IN ASTRONOMY INFRASTRUCTURE IN CHILE

Until 2012: USD 3.15 billion⁽³⁾.

(1) It considers all types of ISI publications.

(2) Lead researchers or co-researchers from FONDECYT Regular and FONDECYT Initiation who were ratified between 2007 and 2012.

(3) Includes 50% of the investment of ALMA Astronomy Project.

CHILE: INSTITUTIONS FOR SCIENTIFIC DEVELOPMENT

Chile advances towards a knowledge-based economy and society, which will lead us to development and a higher standard of living for all.

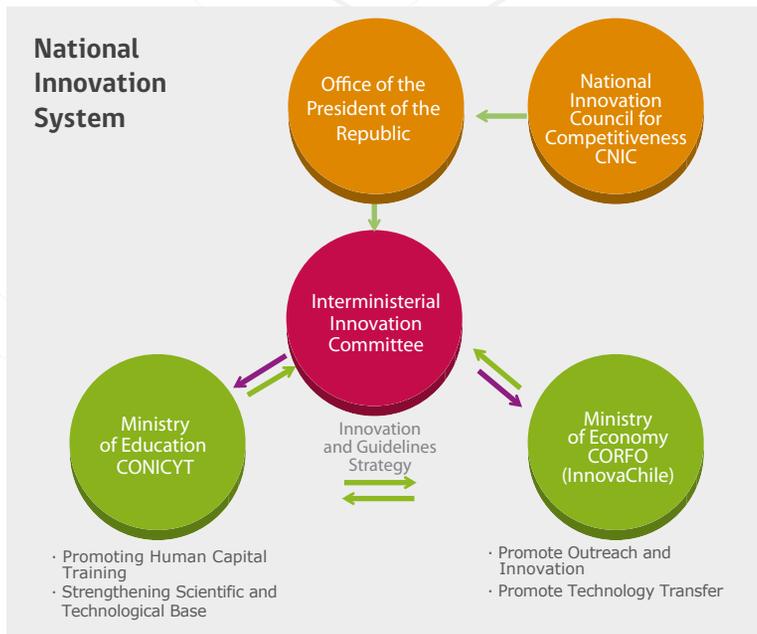
In this context, a large part of the scientific and technological research that is conducted in Chile counts on public funding, delivered through grants for research institutions and through competitive calls, among other instruments.

How does support for SCIENCE work in Chile?

The Office of the President of the Republic leads the National Innovation System, under the direct guidance of the National Innovation Council for Competitiveness (CNIC).

The CNIC proposes general guidelines for the development of a National Innovation Strategy. The Inter-ministerial Innovation Committee evaluates these criteria, and then establishes short-, medium-, and long-term national policies regarding science, technology, and innovation (S&T+i), and monitors the proper implementation of the National Innovation Strategy.

The Ministries of Education and of Economy play a leading role in the Inter-ministerial Innovation Committee, and their participation is channeled through the main public institutions that are focused on the development of (S&T+i): the National Commission for Scientific and Technological Research (CONICYT) and InnovaChile of the Production Development Corporation (CORFO).



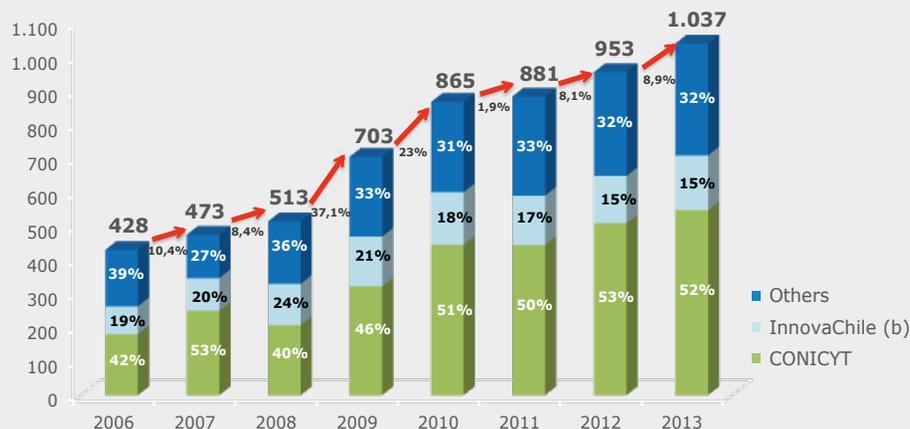
For the last 45 years, **CONICYT** has been responsible for strengthening Chile's scientific and technological base, and for promoting the formation of advanced human capital. The effects of CONICYT's work are observed in very different areas, improving the quality of life of Chileans, which is expressed in the slogan **"SCIENCE changes our lives"**.

In recent years, CONICYT has promoted the idea of making the most of Chile's comparative advantages, sharing our natural labs with the main international scientific institutions and their researchers.

Additionally, **CORFO** implements government policies in the areas of entrepreneurship and innovation, seeking to create conditions to position Chile as a world leader in competitiveness.

Towards this end, the budget of the National Innovation System grew from USD 437 million in 2007 to USD 1,037 million in 2013, equivalent to 119%.

National budget for Science, Technology and Innovation (a)



Notes: (a) Exchange rate of 486.75 Chilean pesos (average dollar value for 2012, Banco Central).

(b) Includes 2013 Año de la Innovación assignment for S&T+I.

CONICYT: 45 YEARS OF SUPPORT FOR CHILEAN SCIENCE

45
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The National Commission for Scientific and Technological Research (CONICYT) has taken on the challenge of promoting Chile's scientific and technological research, and of supporting the training of researchers and professionals that the country requires for its economic, social, and cultural development.

CONICYT was established in 1967 as a science advisory body for the Office of the President of the Republic. It is a public autonomous institution that is

supervised by the Ministry of Education. CONICYT carries out its tasks through two main strategic pillars: supporting the formation of Advanced Human Capital and strengthening Chile's Scientific and Technological Foundation.

In order to make progress in accomplishing its goals, CONICYT has different programs that allocate resources through competitive calls, and whose excellence and transparency standards have been internationally acknowledged.

Total Budget CONICYT*



* Exchange rate of 486.75 Chilean pesos (average dollar value for 2012, Banco Central).

As a way of enhancing the impact of these programs, in 2012, the "CONICYT International Panels of Experts" were organized. Renowned personalities from different countries and knowledge areas thoroughly discussed the FONDECYT, FONDEF, PIA, and FONDAP programs. The intention is to repeat -in the short run- this kind of work about the rest of the programs.

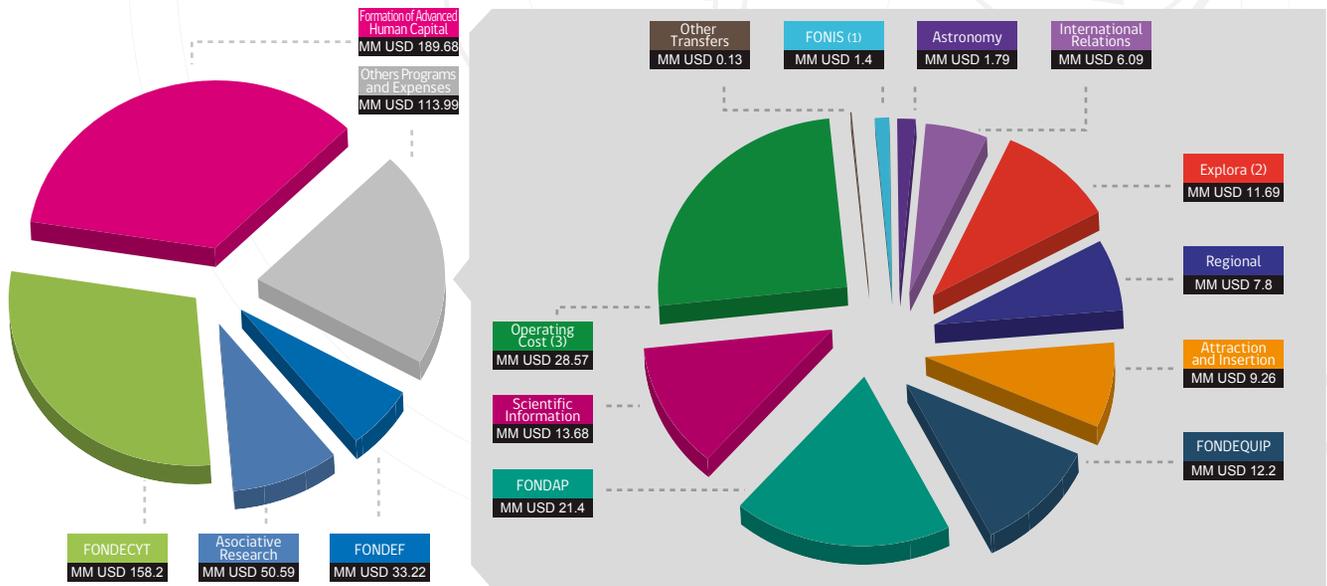
This way, CONICYT offers the scientific and academic community, research institutions, and Chilean society as a whole, a broad and diverse range of support initiatives for all areas of knowledge.

In the area of Formation of **Advanced Human Capital**, there are programs such as Formation of Advanced Human Capital, Attraction and Insertion of Advanced Human Capital, and Explora.

With the aim of strengthening the country's **Scientific and Technological Foundation**, the following programs are implemented: FONDECYT, FONDEF, FONDAP, Associative Research, Regional, Astronomy, FONIS, and FONDEQUIP.

There are two more **cross cutting programs** that are aimed at complying with both strategic pillars: International Relations and Scientific Information.

2013 CONICYT BUDGET*



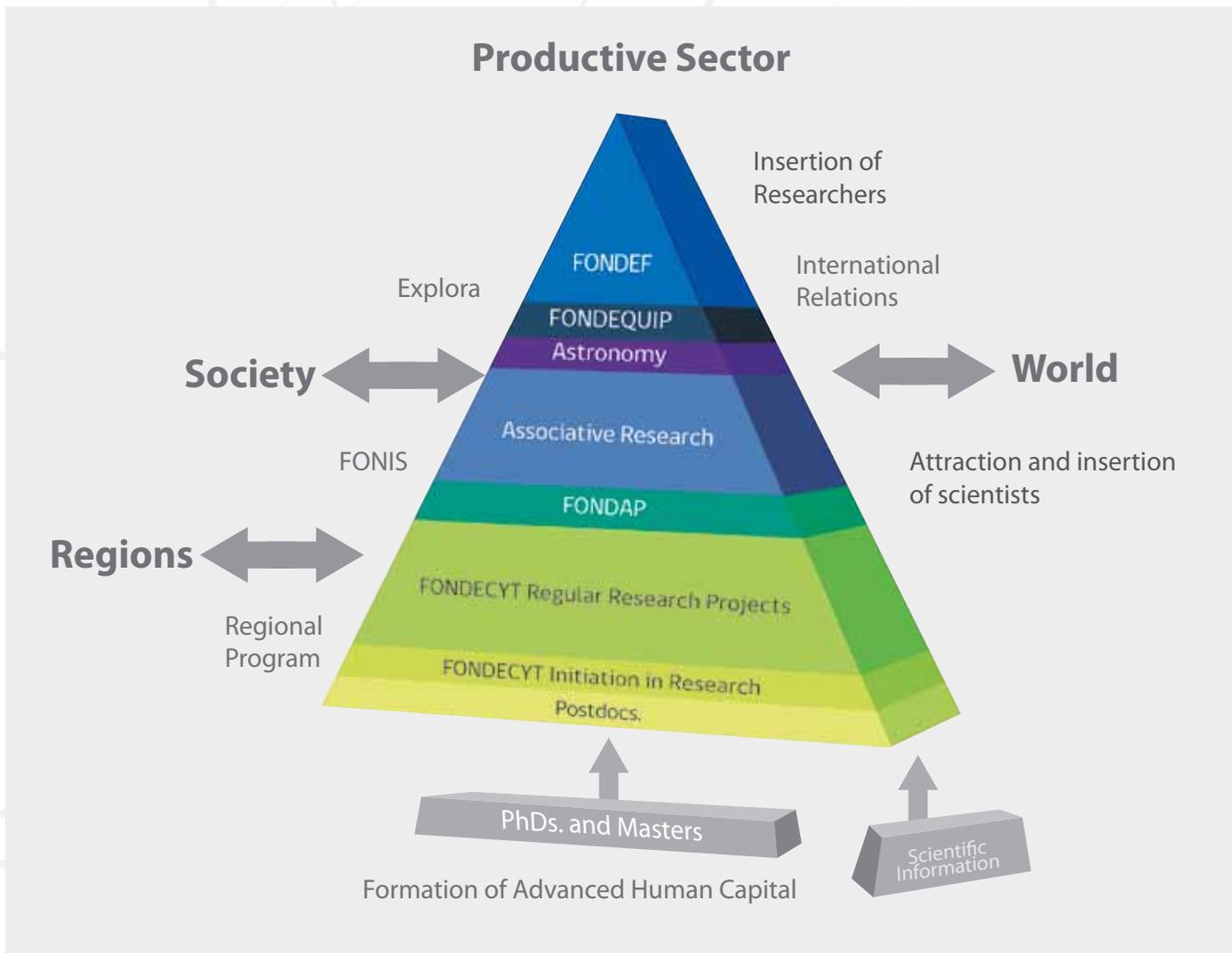
* Exchange rate of 486.75 Chilean pesos (average dollar value for 2012, Banco Central).

(1) Considers CONICYT funds only.

(2) Includes the Planetary renovation funds.

(3) Includes CONICYT'S new building funds.

CONICYT MAIN PROGRAMS AND THEIR LINKAGE



CONICYT PROGRAMS AND DEPARTMENTS



SCIENTIFIC AND TECHNOLOGICAL BASE PROGRAMS

FONDECYT	FONDEF	FONDAP	Regional
Associative Research	Astronomy	FONIS	FONDEQUIP

HUMAN CAPITAL PROGRAMS

Formation of Advanced Human Capital	Attraction and Insertion of Advanced Human Capital	Explora
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CROSS CUTTING PROGRAMS

International Relations	Scientific Information
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SUPPORT DEPARTMENTS

Administration and Finances	Human Resources Management	ICT	Internal Audits	Legal	Public Information and Outreach	Strategic Studies and Planning
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Director: María Elena Boisier P. / meboisier@conicyt.cl / Budget 2013: USD 158.2 million

The **National Fund for Scientific and Technological Development, FONDECYT**, aims to encourage and promote the development of basic scientific and technological research. It is the main public fund of this kind in the country. It was established in 1981, and it has financed over 16,000 research projects, whose impact has benefited the scientific community and society as a whole.

LINE OF ACTION

Financial support for individual research in all knowledge areas and at different stages of a researcher's career.

FUNDING INSTRUMENTS

- **Regular Projects:** Geared towards experienced researchers. The head researcher may participate with a small group of undergraduate and graduate co-researchers and their sponsoring institutions. The project includes funding for the project's staff (researchers, technical personnel, and thesis students); researchers' trips; resources for bringing foreign colleagues from abroad for a short-stay; operation costs; infrastructure equipment and support; and management expenditures for sponsoring institutions. Projects may go on for two to four years, and may be related to any knowledge area. Research is conducted in Chile.
- **Post-Doctoral Projects:** Geared towards young researchers who have obtained their PhD in the previous three years. The head researcher must have a sponsoring researcher and a sponsoring institution. The post-doctoral beneficiary will receive a fee, research support, health coverage, and moving expenses, if needed. Projects may go on for two to three years, and may be related to any knowledge area. The researcher will be able to benefit from this project only once. Research is conducted in Chile.
- **Projects for Initiation in Research:** Geared towards young researchers who have obtained their PhD in the previous five years. The head researcher, along with the sponsoring institution, obtains funding for technical personnel and

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Advisors

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Alejandro del Pozo

MAIN ACHIEVEMENTS IN 2012

- Discussion of FONDECYT's work through the 2012 "CONICYT International Panels of Experts".
- During 2011, the FONDECYT Program worked on the implementation of ISO 9001:2008 in its processes, and obtained certification in July 2012.
- Increase of approved projects in all competitive calls: 4.3% of Regular Projects (from 605 to 631); 58.7% of Post-Doctoral Projects (from 150 to 238); and 11.8% of projects for initiation in Research (from 262 to 293).
- A 91.1% increase in the number of applications for the Post-Doctoral Project, compared to the previous year.
- Of a total of 631 projects approved during the 2013 Regular Projects competitive call, 104 belong to projects that were finished under the Initiation in Research category (16.5%).
- During the 2013 competitive call for Post-Doctoral Projects, each initiative included one-time health coverage for those who requested it, as well as moving expenses reimbursement for those who live abroad and must come to Chile to implement the project.
- For the 2013 Regular Projects competitive call, a 3% allowance was added to the project's cost -without counting researcher's fees-, as support for research infrastructure.

Director: Gonzalo Herrera J. / gherrera@conicyt.cl / Budget 2013: USD 33.22 million

The **Scientific and Technological Development Support Fund, FONDEF**, was established in 1991. Its main purpose is contributing to make the Chilean economy more competitive, and to improve the quality of life of Chileans, while promoting closer ties among research institutions, companies, and other entities, for the implementation of applied research and technological development projects that are of interest for the productive sector or that are geared towards the public interest.

LINES OF ACTION

- Support for applied R+D projects with a high scientific content, and that focus on generating economic and/or social impact. Research institutions that are in a partnership with companies or other entities that support them are in charge of implementing the projects.
- Support for capacity building in innovative entrepreneurship, based on research that graduates from Chilean universities are conducting. Funding for ventures based on the results of students' undergraduate or graduate theses.
- Appreciation of University Research Program (VIU), which seeks to promote the entrepreneurial spirit at universities, by supporting new businesses or companies, based on undergraduate or graduate research conducted at Chilean universities.
- Regional FONDEF Program, which contributes to the scientific, technological, and innovation development that is required in Chile's different regions, with resources from the Innovation Fund for Regional Competitiveness.

FUNDING INSTRUMENTS

Regular Programs:

- IDEa Program: It provides funding for research projects with a high scientific content, whose results must be obtained, evaluated, and validated in the short run. It comprises two instruments: the Applied Science Competitive Call and the Technological Research Competitive Call.
- Annual competition for research and development projects (R+D), which ended in 2012 and gave way to the IDEa Program, but maintaining monitoring for selected projects.
- Tematics Programs:
 - Effective Information and Communication Technologies in Education Program (TIC-EDU).
 - World Aquaculture Program (HUAM).
 - Red Tide Program (last call was issued in 2012).
 - R+D Program on Bioenergy.
 - Functional Foodstuffs Program.
 - Program of Biotechnology Tools for the Genetic Enhancement of Fruit Crops.
 - Diversification of Chilean Aquaculture Program.

MAIN ACHIEVEMENTS IN 2012

- The first Applied Research competitive call of the IDEa Program awarded fund for 55 projects out of 372 applications.
- The XIX Annual R+D competitive call (last version) awarded funds for 27 projects out of 232 applications.
- The second VIU competitive call awarded resources for 34 projects.
- The IV HUAM competitive call awarded funds for 10 projects.
- The VI TIC-EDU competitive call provided resources for five projects.

Advisory Council 2012

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Director: María Elena Boisier P. / meboisier@conicyt.cl / Budget 2013: USD 21.4 million

Since its establishment in 1997, the **Fund for Research Centers in Priority Areas, FONDAP**, has financed 15 centers in very different areas, such as mathematics, oceanography, astronomy, and geothermia. For the latest competitive call, six areas were defined as issues of country-wide interest: sustainable agriculture and/or aquaculture; climate change; sustainable urban development, natural disasters, solar energy, and indigenous people.

LINE OF ACTION

- Establishing or strengthening Centers of Excellence to operate for a period of 10 years. This is achieved by Generating high-impact scientific research of excellence, based on the articulation of multidisciplinary groups of researchers who can demonstrate their productivity in areas where basic national science has reached a high level of development. Other goals of the FONDAP centers are the formation of advanced human capital, the establishment of national and international cooperation networks, and the dissemination of research results to the scientific community and the rest of society.
- The first competition supported three initiatives that have already been implemented: the centers for Interdisciplinary Advanced Research in Materials Science (CIMAT), for Cellular Regulation and Pathology (CRCP), and for Mathematical Modeling (CMM).
- The second competitive call added four centers: for Advanced Studies in Ecology and Biodiversity (CASEB), for Oceanographic Research in the Eastern South Pacific (COPAS), for Astrophysics (CENASTRO), and for Molecular Cell Studies (CEMC).
- The third competitive call awarded resources for two centers in late 2010: for Genoma Regulation (CRG), and for Excellence in Geothermia in the Andes (CEGA).

FUNDING INSTRUMENTS

National Competition for Research Centers of Excellence. In its four editions, it has supported 15 centers that work for periods of 10 years.

Since their establishment, the nine centers of excellence have produced more than 4,350 indexed publications; over 520 young researchers have obtained their PhD, and more than 315 have obtained their Master's degree. Close to 435 post-doctoral professionals have participated in the Centers research programs.

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Alejandro del Pozo

MAIN ACHIEVEMENTS IN 2012

In 2012, the "Fourth National Competitive Call for Research Centers of Excellence in Priority Areas - FONDAP 2011", awarded resources for six new centers. These centers are significant because they fall within the areas that have been defined as priorities of nationwide interest:

- Multidisciplinary Center for Intercultural and Indigenous Studies (ICIIS), Pontificia Universidad Católica de Chile (2012-2017).
- Center for Climate Science and Resilience (RC)², Universidad de Chile (2012-2017).
- National Research Center for the Integrated Management of Natural Disasters (RCINDIM), Pontificia Universidad Católica de Chile (2012-2017).
- Center for Solar Energy Research (SERC-Chile), Universidad de Chile (2012-2017).
- Center for Sustainable Urban Development (CEDEUS), Pontificia Universidad Católica de Chile (2012-2017).
- Interdisciplinary Center for Sustainable Aquaculture Research (INCAR), Universidad de Concepción (2012-2017).



Director: Paula González F. / pgonzalez@conicyt.cl / Budget 2013: USD 7.8 million

The **Regional Program** was created in 2000 with the goal of promoting scientific and technological development in Chile's regions, by working jointly with regional governments and research centers, according to the needs and priorities determined in each region for its economic and social development.

LINES OF ACTION

- Generating capacities for the development of science, technology, and innovation in Chile's different regions, through the implementation and monitoring of projects that focus on the establishment and strengthening of Regional Centers for Scientific and Technological Research, funded jointly by CONICYT and each regional government.
- Promoting the implementation of instruments that are relevant for regional needs, and coordinating the use of resources coming from the Innovation Fund for Competitiveness (FIC Regional) -that are allocated to CONICYT- through the institutional representation of stakeholders who participate in the process of funding allocation.

FUNDING INSTRUMENTS:

- Competitive call for the establishment of Regional Centers.
- Competitive call for the strengthening of Regional Centers.
- Call for project of Regional Diploma Programs in Science, Technology, and Innovation for Competitiveness.
- Regional calls that are coordinated with other CONICYT programs, such as the Regional Call for Science-Private Sector Ties, Regional Call for Doctoral Theses on Industry, R+D Regional Call, and Chile VA!, among others.

MAIN ACHIEVEMENTS IN 2012

- 14 working Regional Centers.
- Three projects for strengthening Regional Centers awarded in the Fourth National Competitive Call.
- First-time implementation of a Complementary Fund along with Antofagasta, Biobío, and Tarapacá Regions. CONICYT resources were added to allocations made by the regions through their FIC Regional or other regional funds. Three cooperation agreements were signed for a long-term program that will strengthen science and technology capacities.
- USD 7.8 million that governments have allocated for CONICYT, which represents 30% more than in 2011. This allowed awarding resources for two regional diploma projects in Biobío Region, and issuing regional competitive calls with PAI, PIA, FONDEF, and Explora programs.
- Implementation of the RED Project in Antofagasta, Coquimbo, Metropolitana, O'Higgins, and Tarapacá regions.

Advisory Council 2012

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Director: Isabel Meneses C. / imeneses@conicyt.cl / Budget 2013: USD 50.59 million

The **Associative Research Program, PIA**, was launched in 2009 with the goal of coordinating different instruments and initiatives of support for associative research, and of promotion for research centers of excellence.

LINES OF ACTION

- Contributing to the strengthening of Chile's scientific base and facilitating the use of its progress and results, in order to encourage the development of the public and productive sectors.
- Promoting the articulation and association of researchers and their links with other national and/or international actors, in order to encourage the establishment and consolidation of scientific and technological groups and centers.

FINDING INSTRUMENTS

- Competitive calls for Research and Development Centers (R+D): Centers for Advanced Research in Education; Shared-Use Major Scientific and Technological Equipment Supply Centers; Scientific and Technological Centers of Excellence (baseline funding); Business Technological Consortia for Research (this instrument has been transferred to CORFO).
- Competitive national calls for Science and Technology Research Networks; Social Sciences and Humanities Research Networks; and Antarctic Science Research Networks.
- Competitive call for science-private companies partnerships, and for regional research networks (developed jointly with CONICYT's Regional Program).
- Strengthening of Social Sciences International Networks.

MAIN ACHIEVEMENTS IN 2012

- Resources awarded during the Fourth National Call for Science and Technology Research Networks (22) and for Antarctic Science (2), and for the Third Call for Social Sciences and Humanities Research Networks (11).
- International assessment favoring –for a new period of five years– the continuity of the first eight Scientific and Technological Centers of Excellence supported by baseline funding.
- Launch of three of the four Shared-Use Major Scientific and Technological Equipment Supply Centers.
- Implementation of the Second Call for science-private sector partnerships in the Regions of Tarapacá, Atacama, Araucanía, and Magallanes, with resources from FIC Regional (jointly with CONICYT's Regional Program).
- Launch of the First Regional Call for Science and Technology Research Networks – 2012, funded by FIC for Antofagasta Region.
- Agreement signed between CONICYT and the Chilean Antarctic Institute (INACH), for joint funding of the coordination, development, and monitoring of Antarctic Science Research Networks.

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Advisor: Mónica Rubio L. / mrubio@conicyt.cl / Budget 2013: USD 1.79 million

In 2006, CONICYT established the **Astronomy Program** in order to position this area as strategic for the development of science in our country, and to turn Chile into an astronomy world power. The skies over Chile are extraordinary for astronomical observation. That is why some of the most powerful observatories in the world are located in this country: Gemini-South, GMT, LSST, E-ELT, APEX, and ALMA. In 2020, Chile will concentrate 70% of the world's telescope infrastructure, which will represent a USD 6 billion investment.

LINES OF ACTION

- Support, strengthening, and public outreach for astronomy, in order to position this field as strategic for the development of science and to turn Chile into an astronomy world power.
- Promoting scientific and technological cooperation and attracting new projects and investment in astronomy, through strategic national and international alliances.
- Competitive call for QUIMAL Fund, for the Development of National Astronomy Instruments and Technology.
- Competitive call for the management of Chilean observation time (37%) at Gemini-South, APEX, and ALMA telescopes.
- Management of Atacama Astronomy Park in Antofagasta Region. With over 36,000 hectares, it hosts the Atacama Cosmology Telescope (ACT), PolarBear, and CLASS on Cerro Toco, and the 1 m Tokyo Atacama Observatory (mini-TAO) on Cerro Chajnantor. Also, on Cerro Chajnantor, the Atacama Telescope (CCAT) and the 6.5 m TAO will be installed, along with other projects that are under consideration.
- Operation of the GEMINI National Office.

MAIN ACHIEVEMENTS IN 2012

- Resources awarded to 10 projects through the ALMA-CONICYT Fund, and to 11 projects through the GEMINI-CONICYT Fund.
- Granting of 796 observation hours for Chilean researchers at APEX radio telescope (40 projects), and 195 hours at Gemini South radio telescope (21 proposals).
- Scientific Cooperation Agreement in Astronomy signed between CONICYT and the Chinese Academy of Sciences (CAS), which will be implemented in 2013.
- Second Chile-China Astronomy Workshop, held in Beijing with the participation of 15 Chilean astronomers.
- Launch of the QUIMAL Fund for the Development of National Astronomy Instruments and Technology, which finances the construction or acquisition of instruments.
- Presentation of "Astronomy, Technology, Industry: Roadmap for the Fostering of Technology Development and Innovation in the Field of Astronomy in Chile," a joint effort of CONICYT, the Ministry of Economy, CORFO's InnovaChile, the Ministry of Foreign Affairs, and the National Innovation Council for Competitiveness (CNIC).
- Progress was made in the implementation of the Atacama Astronomy Park to consolidate the 50-year concession on Llano de Chajnantor: mini-TAO (Tokio Atacama Observatory), Atacama Cosmology Telescope (ACT), and Polarbear are already in operation. The installation of CLASS has been approved for March 2013.

Advisory Council 2012

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Director: M. Ximena Luengo Ch. / mluengo@conicyt.cl

Budget 2013: USD 2.2 million / USD 1.4 million CONICYT and USD 0.8 million MINSAL.

The **National Fund for Research and Development in Health, FONIS**, was established in 2004 as a joint initiative between the Ministry of Health (MINSAL) and CONICYT, with the goal of promoting applied research to quality health care, focusing on the generation of knowledge that is needed to address the health needs of the poorest sectors of the population. Both institutions contribute to the fund.

LINES OF ACTION

- Encouraging and building capacities for applied research in health that is focused on Chile's specific needs
- Generating information that can serve as a basis for decision-making in health and as guidance for public policies.

FUNDING INSTRUMENTS

- National Competitive Call for Research and Development Health Projects.



MAIN ACHIEVEMENTS IN 2012

- Funds were awarded for 41 initiatives as part of the 9th National Competitive Call for Research and Development Health Projects, 10.8% more than for the 2011 edition, and a 10.5% increase in the total amount of allocated funds.
- "Bioethics Seminar: Updated ethics on research involving human subjects." Information was shared on how international regulations work, and how these will affect research on human subjects in Chile's new legal framework.
- Two FONIS projects published results in international scientific journals, while two other initiatives had an impact in their own region and obtained additional financial support (from CORFO's InnovaChile and the Atacama Regional Government) to continue developing.

Advisory Council 2012

President

Emilio Santelices

Advisors

Rodrigo Contreras

Gonzalo Herrera

Ricardo Maccioni

Juan Pablo Torres

María Teresa Valenzuela



Director: Patricio Vásquez A. / pvasquez@conicyt.cl / Budget 2013: USD 12.2 million

The **Scientific and Technological Equipment Program, FONDEQUIP**, was established in 2011 as part of the 50-measure Competitive Drive Agenda, a broad government program that aims to remove the obstacles that hinder the entrepreneurial capacity of Chileans. FONDEQUIP provides funds –through a system of competitive calls– for acquisitions, updating, and/or access to medium and major scientific and technological equipment that is used in research activities, and also facilitates access to international equipment.

LINE OF ACTION

- Encouraging and promoting the development of research in Chile, by supporting the scientific community with the facilitation of access to the scientific and technological equipment that is necessary in frontier research, and to advance towards a knowledge-based economy and society.

FUNDING INSTRUMENTS

- Competitive call for medium-scale scientific and technological equipment.



MAIN ACHIEVEMENTS IN 2012

- Funds were awarded for 47 projects in the First Competitive Call for Medium-Scale Scientific and Technological Equipment, with a contribution of nearly USD 10 million. There were 194 applications.
- Seven application workshops in five regions of the country: Antofagasta, Valparaíso, Metropolitana, Biobío, and Los Ríos.

Advisory Council 2012

President

José Miguel Aguilera

Advisors

Juan Asenjo

Manuel Krauskopf

Francisco Melo

Iván Palomo

Ricardo Reich

Formation of Advanced Human Capital Program



Director: Denise Saint-Jean M. / dsaintjean@conicyt.cl / Budget 2013: USD 189.68 million

The **Program for the Formation of Advanced Human Capital Program, PFCHA**, was established in 1989, and is the main government agency in charge of managing scholarships for graduate studies.

LINE OF ACTION

Contributing to increase the number of researchers and professionals of excellence with a high level of training in all areas of knowledge, in order to promote Chile's development and its active participation in a globalized world. Increasing the number of PhDs of excellence by implementing efficient processes, and generating public data about beneficiaries, fellows, and graduates.

- Competitive call for education professionals master's scholarships abroad.

- Competitive call for public officials master's scholarships in Chile.

- Competitive call for post-doctoral scholarships abroad.

- Competitive call for scholarships in medical specializations abroad.

- Competitive call for joint supervision doctoral scholarships abroad.

- Competitive call for doctoral fellowships abroad.

- Competitive call for scholarships to attend events and short courses in Chile and abroad.

- Competitive call for civil engineers scholarships - short stays abroad

FUNDING INSTRUMENTS

- Competitive call for doctorate scholarships in Chile.
- Competitive call for master's scholarships in Chile.
- Competitive call for doctorate scholarships abroad.
- Competitive call for master's scholarships abroad.
- Competitive call for education professionals master's scholarships in Chile.

MAIN ACHIEVEMENTS IN 2012

- The 15 competitive calls issued in 2012 attracted over 7,500 applications, and gathered 850 expert evaluators from all areas of knowledge.
- Doctoral scholarships awarded to study in Chile and abroad totaled 902.
- Complementary scholarships for post-doctoral studies, medical specializations, doctoral fellowships, joint supervision doctoral studies, support and finalization of doctoral theses, and events and short courses attendance, totaled 875.
- Over 5,300 scholarship beneficiaries (current to December 2012) are studying in Chile and at the best universities in the world.
- In 2012, Chile signed 16 agreements with universities from the United Kingdom, the United States, Spain, Australia, and the Netherlands, which result in lower tuition fees and/or complement scholarship benefits.
- Graduate seminars and public outreach events in La Serena, Concepción, Copiapó, Temuco, Valparaíso, and Santiago, to inform about the different scholarship programs that are available.
- Launch of the online platform "Visualization of scholarship beneficiaries in the world" (<http://visualizador.becasconicyt.cl/>), which provides any user the destination of CONICYT scholarship beneficiaries around the world (master's and doctorate), their institution, and their area of study, according to OECD categories.
- Development of the initiative "Optimization of the Process of Signing the Agreement with CONICYT Beneficiaries and of their Reporting Back," which was awarded third prize during the "Management Challenges in Chile" contest that the Ministry of the Treasury organized.

Advisory Council 2012

President

José Miguel Aguilera

Advisors

Andrés Gomberoff

Mauricio Escudey

Juan Larraín

Bernabé Rivas

Joel Saavedra

Juan José Ugarte

Pablo Valenzuela

Daniel Wolff

Ernesto Zumelzu



Director: Carmen Luz Latorre S. / clatorre@conicyt.cl / Budget 2013: USD 9.26 million

The **Attraction and Insertion of Advanced Human Capital Program, PAI**, was created in 2009, and its goal is to enhance the academic, scientific, and technological capacities of Chilean institutions, through the recruitment of internationally recognized scientists for Chilean universities. These visits help to consolidate cooperation networks, and provide support for the integration of new researchers –trained in Chile or abroad– in academia or Chile’s productive sector.

Attraction
and Insertion
of Advanced
Human
Capital
Program

LINES OF ACTION

- Integration of researchers in the productive sector.
- Integration of researchers in academia.
- Recruitment of scientists from abroad.

FUNDING INSTRUMENTS

- Integration of Advanced Human Capital in the Productive Sector.
- Doctoral theses with results that can be directly applied to the industrial sector.
- Integration of Advanced Human Capital in Academia.
- Attraction of Advanced Human Capital from Abroad, Short-Term Visit Modality (MEC).
- Support for the return of researchers from abroad.

MAIN ACHIEVEMENTS IN 2012

- Resources were awarded for 54 short-term visit proposals, which allows internationally renowned scientists to cooperate with Chilean universities, particularly in the country’s different regions.
- Resources were awarded for 42 new projects that focus on strengthening Chilean academic institutions and research centers, through the integration of researchers who develop new lines of research and bolster graduate programs.
- Resources were awarded for 18 new R+D+i projects in different Chilean companies, with the integration of 18 PhD graduates. Additionally, PAI finances 10 doctoral thesis students, who are conducting their projects in the productive sector.
- The pre-integration modality was adopted. This allows companies to receive funding for up to four months to develop a R+D+i project jointly with the researcher that they wish to integrate as part of the final proposal.
- Publication about successful cases of researchers who have been integrated in the productive sector through this benefit. “Researchers in the private sector: the road to innovation” was distributed at an event that was held in October 2012 along with CORFO’s InnovaChile and SOFOFA, and that was attended by close to 200 business owners and researchers.
- In the recruitment area, the CONICYT - FULBRIGHT partnership was strengthened, and a special competitive call was issued: “Recruitment of Advanced Human Capital from the United States” CONICYT - FULBRIGHT 2012.
- Implementation of the first competitive call of PAI’s new funding instrument Support for the Return of Researchers from Abroad.

Advisory Council 2012

President

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Advisors

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Sergio Marshall

Juan José Ugarte

Conrad von Igel



Director (PT): Mariana Velasco V. / mvelasco@conicyt.cl / Budget 2013: USD 11.69 million

Explora Program is a Science and Technology Non-Formal National Education Program. CONICYT established it in 1995, and its mission is contributing to the creation of a culture of science and technology in the community -particularly among those who are of school age-, through non-formal education activities. The goal is to develop the capacity for benefit ownership.

Every year there is a different theme. Neuroscience was the theme in 2012, and Natural Labs will be the thematic focus in 2013.

LINE OF ACTION

- Dissemination of science and technology.
- Social appreciation for science and technology.
- Explora implements its work through a network that covers Chile's 15 regions.

FUNDING INSTRUMENTS

- Chile VA!
- Regional Associative Projects.
- Explorines.
- AICE Clubs.
- Science and Technology Appreciation and Dissemination Projects.
- TV Competitive Call (Natural Labs).
- Competitive Call for Public Outreach Activities.
- Competitive Call for Public Outreach Products.

MAIN ACHIEVEMENTS IN 2012

- A total of 1,435 students attended 10 camps organized by "Chile VA!": six national camps held in O'Higgins Region (Picaquín, San Francisco de Mostazal), and four regional camps, in Tarapacá, Los Ríos, Atacama, and Antofagasta.
- Distribution of 100,000 "Explora Bulletins," 300,000 "Activities Books," and 300,000 "Brain Hats."
- Implementation of the NEUROCIENCIA website, which had 19,789 visits between August and December 2012. The www.explora.cl website has had 1,611,432 visits.
- Three virtual tours of exhibitions: News of the Universe; Granular material, from the grain to the avalanche; and Exposismos, the Earth is Alive.
- A total of 11,950 students participated in "Your Science Skills" and 688 teachers attended training sessions.
- Seven traveling exhibitions in 29 districts, with a total attendance of 145,768 persons.
- A total of 457 works of school scientific research participated in regional congresses, and there were 30 winners nationwide. In these activities, there were 11,577 visitors and 1,856 students.
- A total of 445,768 persons attended National Science and Technology Week in Chile's 15 regions.
- Resources were awarded to 129 Science and Technology Appreciation and Dissemination initiatives, and there was one TV competitive call about Natural Labs. Two new competitive calls were established: Social Ownership Activities and Social Ownership Products.

Advisory council 2012

President

José Miguel Aguilera

Advisors

Jaime Campos

Haydée Domic

Ricardo Evangelista

Nicolás Luco

Consuelo Valdés

Mariana Velasco

Eugenio Vogel

Director: María Teresa Ramírez P. / mramirez@conicyt.cl / Budget 2013: USD 6.09 million

The **International Relations Program, PRI**, was established in 2000. Its mission is to encourage joining and strengthening international networks, with the goal of integrating Chile's scientific community into frontier knowledge.

LINE OF ACTION

- Promoting and supporting the integration of Chile's scientific community with its colleagues abroad, based on scientific excellence, mutual benefits, and common interests, under different collaboration modalities and in the framework of S&T cooperation agreements with foreign agencies.
- Multilateral networks: S&T Ibero-American Program for Development (CYTED), Inter-American Program for Materials Science (CIAM), Regional STIC-Amsud Program for Information and Communication Technologies (ICTs), and MATH-Amsud for Math.

FUNDING INSTRUMENTS

- Program for the Development of Research Projects between Chile and the United States (NSF).
- Bilateral joint research programs with France (ANR), Finland (AKA), Switzerland (SER), Argentina (ANPCyT), and Germany (DFG).
- Support for the establishment of networks and of ties between Chilean research centers and centers from other countries.
- International Scientific Cooperation Program (PCCI) for exchange programs with France, Germany, Mexico, Colombia, Argentina, and Brazil.
- European Union Program, which considers different thematic areas for cooperation and advises Chilean researchers, in order to help them enhance their participation in the Seventh Framework Program.
- "Abate Juan Ignacio Molina Award" as a recognition of Chilean scientists for the career and scientific work of a German researcher in any knowledge area.

MAIN ACHIEVEMENTS IN 2012

- A total of 28 international network programs between research centers and the United States, Brazil, the United Kingdom, Japan, Germany, China, and Mexico.
- 45 bilateral exchange projects with Colombia, France, and Germany.
- 12 new exchange projects in multilateral research networks, through the STIC-Amsud and MATH-Amsud programs.
- 14 fellowships and 8 networks established between research centers in the area of Energy and counterparts in Spain, the United Kingdom, Australia, Canada, Brazil, and New Zealand.
- Six joint research projects with the United States in the fields of seismology / anti-seismic engineering, ecology and biodiversity, and oceanography. These projects are the result of intensive work that has been conducted with the National Science Foundation (NSF), which began with a visit to Chile by NSF Director Subra Suresh in January 2012, and continued with the signing of a Memorandum of Understanding between CONICYT and NSF in May 2012.
- CONICYT exploratory mission to India, during which a 2012-2015 Cooperation Plan was signed with that country's Ministry of Science and Technology.
- A Memorandum of Understanding was signed with the Chinese Academy of Agricultural Mechanization Sciences (CAAMS) and with the Chinese Academy of Sciences (CAS). Also, in August, an astronomy cooperation workshop was held in Beijing, with the participation of 15 Chilean researchers.
- Joint CONICYT-Helmholtz competitive call, with the aim of supporting current projects that are being sponsored by FONDECYT's Initiation into Research competition in the areas of seismology, mega-cities, and polar research.

Advisory Council 2012

Dora Altbir
Leonardo Bronfman
Joaquín Fernandois
Laura Gallardo
Rodrigo Palma
José Ricardo Pérez
Luz María Pérez
Carlos Vio



Director: Patricia Muñoz P. / pmunoz@conicyt.cl / Presupuesto 2013: USD 13,68 million

The purpose of the **Scientific Information Program** is to strengthen and guarantee access to national and international scientific information for research, education, and innovation. This is achieved through initiatives of high public value, such as the management of the National Infrastructure of Access to Scientific and Technological Information, which turns the Program into a reference point on the management of scientific information.

LINE OF ACTION

- Bolstering the visibility of Chilean scientific production and measuring its quality and impact.
- Diversifying the mechanisms of access to scientific information as a component of R+D activities.
- Designing instruments that will allow the reutilization and management of scientific information and research data.
- RedCiencia. It is the scientific cooperation initiative with the highest impact among Spanish-speaking researchers, and is presently active in more than 15 Latin American countries (www.redciencia.net).
- Researchers' Portal. It offers up-to-date information on researchers and their scientific productivity. This information is useful for finding national peers as part of a research project, and for learning about cooperation initiatives among researchers (www.portaldelinvestigador.cl).

FUNDING INSTRUMENTS

- Scientific Information Electronic Library, BEIC. It provides online access to the whole content of over 5,900 scientific journals on more than one hundred fields of study (www.beic.cl).
- SciELO-Chile. The Scientific Electronic Library Online (SciELO) is a collection of 91 Chilean scientific journals, with full and free text accessibility through the Ibero-American SciELO Network (www.scielo.cl).
- Institutional Repository. It contains the results of research that was generated in projects and/or studies that have been funded by CONICYT. It provides access to the whole content of more than 4,000 documents (<http://ri.conicyt.cl>).
- Productivity Portal. It monitors Chilean scientific production on international sources, such as the Web of Knowledge (previously known as ISI) and Scopus (www.productividadcientifica.cl).
- Fund for the Publishing of Chilean Scientific Journals. It provides funds for Chilean scientific journals of high quality and of international circulation. Since 1988, it has provided support for 453 projects.
- Fund for the Study of Pluralism in the National Information System. Since 2009, it issues competitive calls to finance research on communications that favors the expression of social, cultural, political, and regional diversity.

MAIN ACHIEVEMENTS IN 2012

- Expansion of BEIC to 30 new institutions. Currently, users from 58 universities and research centers have free access to scientific information in over 5,900 journals, thanks to CONICYT funding.
- "Main Bibliometric Indicators in Chilean Scientific Activity; 2012 Report," a study conducted by SCImago Research Group. It analyzed the 2006-2010 period, classified Chilean scientific research, and compared Chile's bibliometric data with that of other countries of the region and with the world average.
- "Assessment of the SciELO-Chile Program," conducted by the SCImago Research Group. It measured the quality of the collection and its impact on teachers and the Chilean and international scientific communities, as well as the efficiency of the public agency that is in charge of maintaining it. This evaluation will be useful for redesigning guidelines that will enhance the quality of Chilean journals.
- Political agreement for the establishment of the Latin American Network of Scientific Documentation Repositories, which emerged from "LA Referencia" project, where CONICYT participates since 2011 through its Scientific Information Program.

Advisory Council 2012

President

José Miguel Aguilera

Advisors

Fernanda Falabella

Andrés Gomberoff

Nicolás Luco

Domingo Mery

Miguel O'Ryan



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