

2008 A Year at CNRS

Economic and financial report



www.cnrs.fr

This brochure is published by the CNRS General Secretariat.

Publisher	Arnold Migus
Editorial director	Alain Resplandy-Bernard
Managing editor	Pauline Chazaud
Staff writer	Séverine Lemaire-Duparcq
Graphic design and layout	Sarah Landel, Texto Editions, Clément Prats
Translation	Benjamin Phister and Sophie Epstein

Printed by **Taag Imprimerie** with plant-based inks on paper meeting the European Ecolabel environmental standards.

Legal deposit	June 2009
ISSN	in progress



On July 1, 2008 the CNRS Board of Directors adopted the “Horizon 2020” strategic plan. It confirms our organization’s position in the French research system as the principal partner of universities. It equally reinforces our position abroad, both as an essential player in creating the European Research Area and as a key international organization. The plan sets out guidelines concerning major decisions and defines our scientific policy, the further development of partnerships, and the evolution of our organization. It will result in the first contractual agreement defining objectives with the French Government, to be concluded in 2009.

This report describes accomplishments of 2008, demonstrating the commitment of our organization, its laboratories and staff to respecting these guidelines and to maintaining excellence in French public research.

Important achievements of 2008 include not only the production of knowledge—CNRS accounts for two-thirds of all French publications—but also technology transfer and successful bids by CNRS research scientists following calls for projects by the European Research Council. Such accomplishments reflect the necessarily ambitious objectives an organization like CNRS sets itself in today’s fast-changing and increasingly competitive environment.

This context requires not only quality in the organization’s core business, but also steadfastness to both adapt and modernize our management practices, a determining factor in the success of CNRS scientific teams.

I trust you will appreciate this 2008 annual report. It was written for you, and will help you appreciate CNRS’ contribution to the challenges facing our society today.

A handwritten signature in black ink, reading "A. Migus". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Arnold Migus
CNRS Director General

key figures...

25,500 PUBLICATIONS PER YEAR, HALF OF WHICH CO-AUTHORED
WITH AT LEAST ONE LABORATORY OUTSIDE OF FRANCE

A PORTFOLIO OF SOME **3,400 PRIMARY PATENTS**,
INCLUDING **295** PUBLISHED IN 2008

37 START-UPS FOUNDED IN 2008 AND UP TO **1,700 NEW RESEARCH
CONTRACTS SIGNED WITH COMPANIES** (FIGURE FOR 2007)

PARTICIPATION IN **880 EUROPEAN PROJECTS**,
INCLUDING **234** NEW CONTRACTS SIGNED IN 2008

**12 PROJECTS AWARDED TO CNRS RESEARCHERS FOLLOWING
CALLS FOR PROJECTS** FROM THE EUROPEAN RESEARCH COUNCIL

PARTICIPATION IN **61 COMPETITIVE CLUSTERS**
WITHIN **400 RESEARCH UNITS**

FOUNDING MEMBER OF **12 ADVANCED THEMATIC
RESEARCH NETWORKS (RTRA)**

PARTICIPATION IN **256 PHD PROGRAMS**

NO. 1 IN EUROPE AND NO. 4 WORLDWIDE
IN THE WEBOMETRICS VISIBILITY RANKING
OF RESEARCH INSTITUTES ON THE WEB

APPROX. **7000 REQUESTS FROM JOURNALISTS** PER YEAR

> Filaments from gills of the "Bathymodiolus
azoricus" hydrothermal vent mussel from
the Azores

4 CNRS producer of knowledge

7 CNRS business partner

10 CNRS distributor of knowledge

12 CNRS an organization with an international calling

16 CNRS stakeholder in territorial development

19 CNRS employer

22 CNRS buyer

24 CNRS real estate operator

26 CNRS stockholder in modernizing government

29 Budgetary and financial highlights

34 Governance

1,098 RESEARCH UNITS, INCLUDING OVER 85% IN PARTNERSHIP WITH **120 INSTITUTIONS OF HIGHER LEARNING** AND RESEARCH AS WELL AS ADDITIONAL DOMESTIC AND INTERNATIONAL RESEARCH ORGANIZATIONS

25,686 TENURED EMPLOYEES
11,517 RESEARCHERS,
14,169 ENGINEERS AND TECHNICIANS
AND **7,619** TEMPORARY EMPLOYEES
ON DEC. 31, 2008

5,941 RESEARCHERS
FROM OTHER ORGANIZATIONS
HOSTED IN CNRS LABORATORIES IN 2008
INCLUDING **41.5%** FROM ABROAD

391 RESEARCHERS HIRED IN 2008,
INCLUDING **26.1%** FROM ABROAD,
AND **531** ENGINEERS AND TECHNICIANS

€2.9 BILLION BUDGET, INCLUDING **€570** MILLION FINANCED THROUGH CNRS-GENERATED RESOURCES IN 2008

€242 MILLION INVESTMENTS IN 2008

801,844 SQ. METERS GROSS FLOOR AREA ACROSS **155** SITES

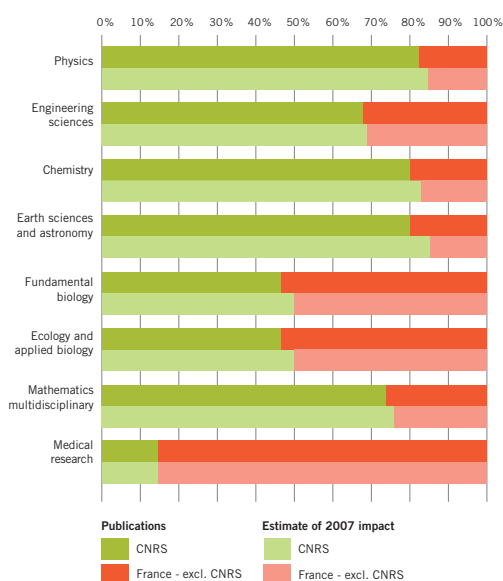
Photo credits. Cover page: © CNRS Photothèque / INSU / LAOG / Emmanuel Perrin. P. 2-3: © CNRS Photothèque / @mex / Sébastien Halary. P. 4: © CNRS Photothèque / Mélanie Bonhivers. © CNRS Photothèque / URMITE / IRD 198 / Didier Raoult, Marie Suzan-Monti. P. 6: © E. Douzery, P-H Fabre / ISEM-CNRS et F. Chevenet / IRD. P. 7: © CNRS Photothèque. P. 8-9: © CNRS Photothèque / Crémant / France Télécom -Orange Labs / Emmanuel Perrin. P. 10: © CNRS, Benoit Lafosse. P. 11: © CNRS Images / Nathalie Lambert. P. 12-13: © CNRS Photothèque / Observatoire Pierre Auger. P. 14-15: © Antares collaboration, CNRS, CEA / Lorette Fabre. © CNRS / Xavier Pierre. P. 16-17: © Jacques Roy. © CNRS / ARCANÉ-CENBG. P. 18: © CNRS / Cyril Frésillon. P. 19: © CNRS Photothèque / Erwan Amice. P. 20-21: © Rosalia Gallotti. © CNRS/Cyril Frésillon. P. 22-23: © Siemens. P. 24-25: © CNRS. © CNRS / Alain Legendre. P. 26-27: © CNRS Photothèque / Claude Delhaye. © CNRS Photothèque / Emmanuel Laroze. P. 28: © CNRS Photothèque / Erwan Amice. P. 29: © CNRS Photothèque / Serge Equilbey.

CNRS producer of knowledge

Knowledge production is the core activity of CNRS. The organization's units have contributed to over two-thirds of French publications and to over 10% of those from the European Research Area. CNRS fully supports the Lisbon Strategy in today's environment where interdisciplinary work holds a key role.

> Marking of the BILBO 1 protein, identified in the parasite responsible for sleeping sickness

Share of CNRS publications in French research and their impact by domain, excluding humanities and social sciences (2006-2007)



Source: SCI (DVD Édition/Thomson Reuters)

HIGH-IMPACT, QUALITY PUBLICATIONS

As a scientific and technical public organization, CNRS' primary mission is to produce new knowledge. Bibliometric analyses carried out in 2008 show that CNRS laboratories had contributed to over 67% of French publications (excluding

medical research), either directly or in collaboration with research scientists from other organizations.

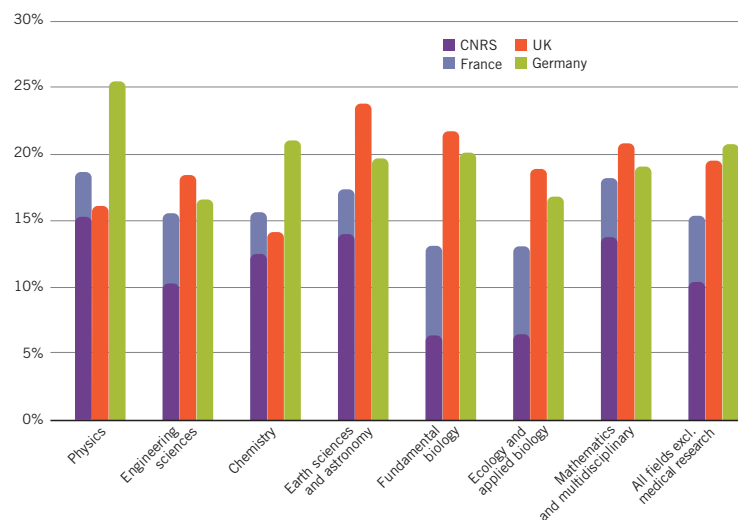
These publications cover all disciplines, with a marked predominance in physics, chemistry, and earth sciences and astronomy, fields where CNRS units have generated over 80% of publications. CNRS has also made decisive contributions in mathematics: over 70% of French national publications have resulted from units supported by the organization. This support, part of the CNRS approach to both interdisciplinary development and partnerships with institutions of higher learning, encourages knowledge transfer to other fields as well as to higher education. However, the CNRS share of publications reflected through bibliometric indicators alone does not convey the vitality of disciplines such as ecology, sustainable development, and applied biology, for instance, which have contributed to our understanding of the bird flu and chikungunya fever epidemics.

Beyond the relative share of publications, the excellence of articles produced by CNRS-affiliated laboratories can be measured by their impact—which extends much further. One remarkable illustration is an article from the Laboratoire d'informatique, de robotique et de microélectronique de Montpellier. This article, which combined algorithms and genetics, was cited over 1,500 times during 2008.

A pan-European analysis confirms achievements at the national level. CNRS contributed to 10.3% of European publications (excluding medical research), although distribution levels varied according to each field. Thanks to the contribution of CNRS units, France holds a predominant position in physics with over 18% of publications. CNRS, with practically 15%, represents alone almost the entire production of the United Kingdom in this field. In earth sciences and astronomy, CNRS participated in close to 14% of publications while France in all represents over 17%. In mathematics and multidisciplinary work, the total number of French publications in 2008 is just about equal to that of Germany and a little lower than that of the United Kingdom. CNRS alone accounts for approximately 14% of European publications in this field.

Share of publications in the European Research Area from CNRS, France, the United Kingdom, and Germany by domain, in the materials and life sciences (2006-2007)

European percentage (ERA=38 countries)



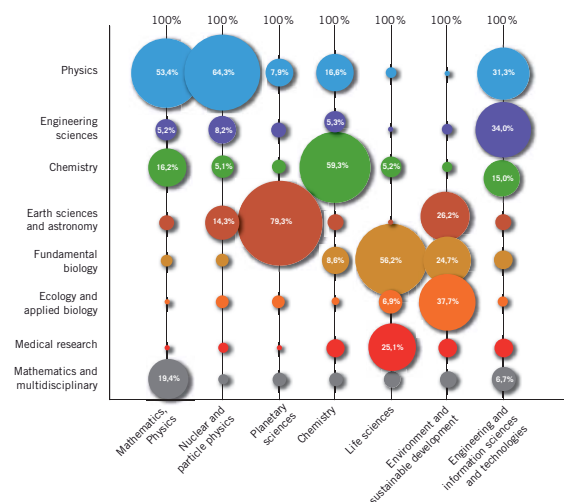
Source: SCI (DVD Edition/Thomson Reuters)

INTERDISCIPLINARY RESEARCH: DRIVER FOR EXPANDING KNOWLEDGE

An analysis of the share of publications emanating from each CNRS institute in 2008 underscores the cross-impact between disciplines. For instance, units attached to the Institute of Information and Engineering Sciences and Technologies contributed mostly to publications in engineering sciences. However they also represented 31% of publications related to physics, and 15% of those in chemistry. Similarly, while nearly 60% of publications in chemistry emanated from their field of research, 16% were contributions to publications in physics and over 8% related to fundamental biology. Finally, in the realm of ecology and sustainable development, CNRS has boosted the collaboration of its research scientists to meet present-day challenges. A bibliometric analysis of the teams in this discipline reveals a major contribution to knowledge production in 2008 from teams both in earth sciences and astronomy (26%) and in fundamental biology (24%).

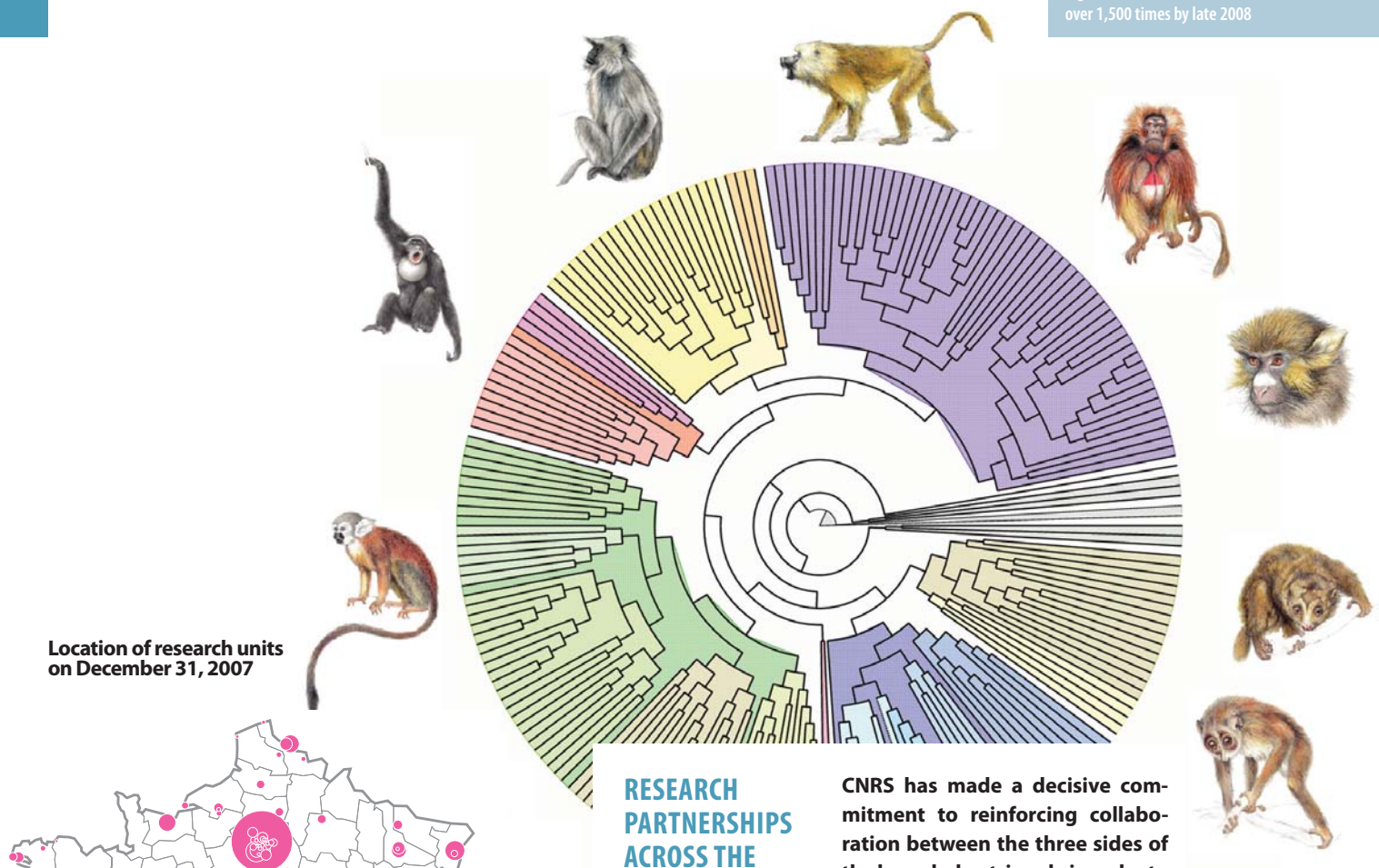
These figures demonstrate the strategic role of interdisciplinary work at CNRS, where it is considered a key driver. The creation of four new interdisciplinary programs in 2008 testifies to this strategic role; they focus essentially on the environment, sustainable development, and energy, along with new concepts and major issues facing society. CNRS' task extends beyond its own laboratories: 6% of the organization's budget for interdisciplinary programs in 2008 went to support research teams outside CNRS.

CNRS Institute publications, by domain (excluding humanities and social sciences)

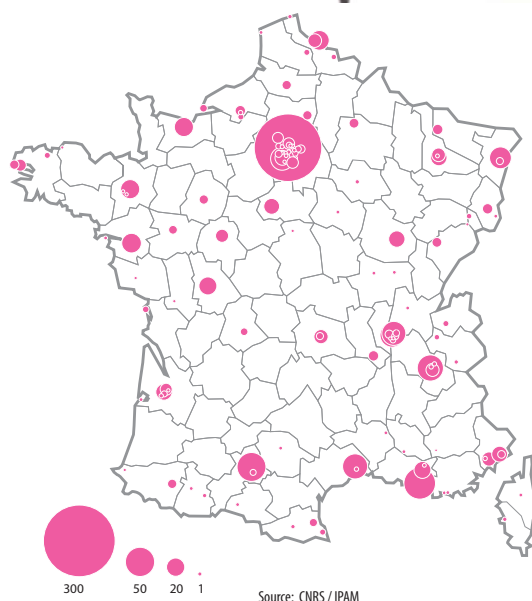


Source: SCI (DVD Edition/Thomson Reuters)

> Analysis of the multiplication of "Mamavirus," which infects amoebas, and the Sputnik virophage able to affect its development



Location of research units on December 31, 2007



Source: CNRS/IPAM

RESEARCH PARTNERSHIPS ACROSS THE COUNTRY

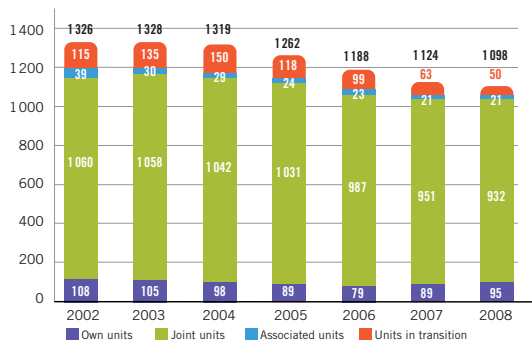
CNRS has made a decisive commitment to reinforcing collaboration between the three sides of the knowledge triangle in order to promote economic development.

The networked structure of CNRS promotes communications among the parties involved in the three areas defined in the Lisbon Strategy: research, education, and innovation. CNRS has set up its new institutes both in order to play an operational role and to provide resources. In 2008 CNRS supported 1,098 units, and almost 90% of these through partnerships with institutions of higher learning and research or other research organizations. Universities alone represent 85% of CNRS-affiliated units. This vital partnership enables CNRS to reach across the nation and so create a genuine knowledge-sharing network within all employment areas. In all 39,000 researchers and academics as well as more than 18,000 engineers and technicians contribute to knowledge production and training through their research in all the disciplines within CNRS-affiliated units.

The CNRS workforce is distributed across France. In 2008 two-thirds of CNRS personnel were located in the provinces and one-third in the greater Paris region, including 17.9% in the city itself and 15.6% in the suburbs. The Languedoc-Roussillon region had the highest percentage of CNRS researchers (22.3%), closely followed by Provence-Alpes-Côte d'Azur (21.2%). Alsace had the largest proportion of engineers and technicians (24.9%).

CNRS has bolstered research, development and innovation throughout France, with certain interesting regional trends. Traditionally the human and social sciences have a strong presence in Paris. Physics is a specialty in the rest of the greater Paris region, ecology in Languedoc-Roussillon, and engineering sciences in the Rhône-Alpes region.

Evolution of research unit types



Source: CNRS/IPAM

CNRS business partner

In 2008, with the increased usage of recently-published patents, CNRS expanded its training programs to give businesses access to the know-how developed within CNRS laboratories. This policy combines technology transfer with the expertise of the organization's units.

> Study of human movement using reflectors.

FROM TECHNOLOGY TRANSFERS TO START-UPS

CNRS published 295 patents in 2008 in addition to the 3,400 already in its portfolio, making it once again one of the top French sources of patent applications. Following CNRS' drive to accelerate technology transfer, the exploitation rate for published patents reached 44% in 2008, up three points in six months. Along with the improved results, 2008 saw a significant increase in the ratio of patent applications to invention reports. CNRS managed and recorded over 90% of the 2008 invention reports leading to a patent application or a software protection request; this reflects a considerable improvement in the quality of the files prepared by the laboratories.

This technology transfer policy has also resulted in the creation of 25 start-ups directly fostered by CNRS laboratories, a 30% increase in 12 months. These start-ups benefit from an exclusive operating license, and can rely on CNRS personnel made available in accordance with the French Law on Innovation of 1999. Along with these direct spin-offs from CNRS laboratories, in 2008 a dozen companies called on CNRS competence for assistance in either their launch or development (see the sidebar).

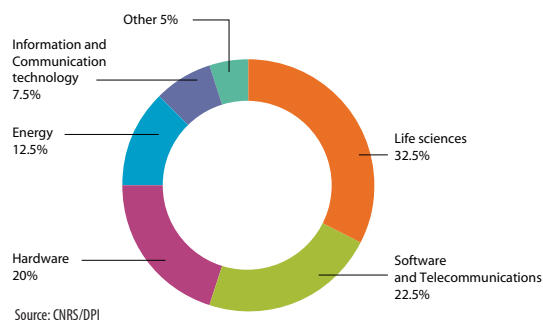
Finally, in 2008 CNRS increased aid to laboratories both before and after the patent application. The organization created 57 jobs for both development engineers and technicians, and provided the funds required to bring the projects to fruition.

Yesterday's PhD student is tomorrow's entrepreneur

Mathieu Boucher and Ines Benkhemis set up their company after working on their PhDs in 2005 and 2006 as members of

the Athletic movement mechanics team of the Laboratoire de mécanique des solides, a joint research unit of CNRS/Université de Poitiers. The technological innovations resulting from their thesis research were transferred exclusively to Sensix, the specialized sensor company they founded in June 2008.

Companies created in 2008, by industry





Crémant: a shared antenna center

In 2008 CNRS, the Université Nice-Sophia Antipolis, and Orange Labs

created the Centre de REcherche Mutualisé sur les ANTennes (Crémant). The center pools the expertise and resources of the Laboratoire d'électronique, antennes et télécommunications with those of the France Télécom-Orange Research and Development Center. The purpose of this alliance is to establish a high profile scientific research cluster in Europe in order to develop technology such as wireless antennas on microchips, or so-called "intelligent" technologies.

Tefal and paleontologists

In 2008, an engineer at Tefal visited the Laboratoire Paléoenvironnement et paléobiosphère de Villeurbanne for

training on molding techniques developed at the laboratory. They allow scientists to measure dinosaur footprints several meters long, on site and with micron-level accuracy. Tefal's goal is to apply these techniques to developing high-precision stamps for decorating bottles in the luxury goods industry.

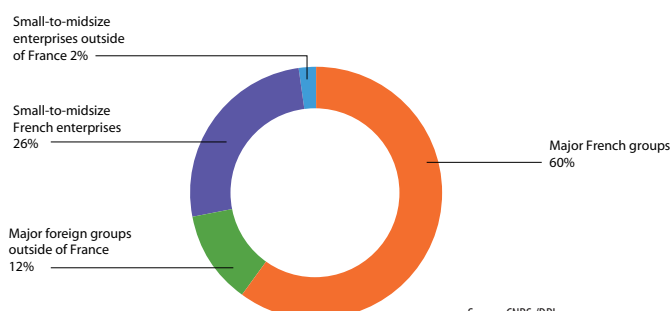
COLLABORATION TAILORED TO BUSINESS REQUIREMENTS

agreements were finalized with Arkema, a spinoff of Total's Chemicals branch, as well as with Safran following previous agreements signed with Snecma and Sagem. CNRS also renewed its partnership with Thales and with Air Liquide. Besides these framework agreements, the organization concluded 1,700 collaborative research agreements with industrial partners on more specific issues. These include several ambitious operations, such as the Crémant project in Nice-Sophia Antipolis (see the sidebar).

Along with one-off and long-term partnerships, the "CNRS formation entreprises" service offers a broad range of training programs for businesses in order for their engineers and technicians to keep abreast of the latest developments. Companies want this type of training to successfully implement their development and innovation strategy (see the sidebar). In 2008, 671 people from 199 private and public companies attended 127 training programs organized in 53 CNRS laboratories. The number of trainees rose by 15% over the previous year. Six new courses were available on such topics as advanced in vivo imaging techniques through bioluminescence and fluorescence in Orléans, or industrial imaging tools at Le Creusot. These excellent results for 2008 are notably due to a more powerful computer system which can adapt supply to meet demand, thereby offering practically tailor-made courses.

In 2008, recent restructuring of major French industrialists caused CNRS to review several framework agreements in order to adapt them to their partners' new organization. New

Agreements in 2007, by business category



Source: CNRS / DPI



> Le Radôme, the Crémant measurement platform located on the Tête de Chien ridge in the Alpes-Maritimes for radiofrequency propagation without disturbance

NEW BUSINESS PARTNERSHIP MODELS

Schools for Innovation, created for competitive clusters in 2006, facilitate exchanges between small-to-midsize enterprises and laboratories, including notably the 400 CNRS laboratories involved in the program. In 2008 these schools contributed to over 20 successful projects in extremely competitive fields, involving both laboratories and start-ups such as Innovimax (see the sidebar).

Likewise, CNRS is testing new types of exchanges for SMEs. A partnership in Alsace between CNRS and the Bas-Rhin Chamber of Commerce and Industry has resulted in regular contact between thirty companies and research laboratories running projects of interest. A dozen research contracts have been concluded following these contacts (see the sidebar). On a broader scale, the CNRS Competency Directory provides responses to requests for the scientific, technological, and methodological expertise of CNRS laboratories.

Finally, over 100 CNRS laboratories have benefitted from the resources for knowledge transfer to businesses, made available through the network of Carnot Institutes.

The School for Innovation, organized by the Cap Digital and Val de Marne Development agency in November 2007, bore fruit in

Collaboration thanks to a School for Innovation

2008. The school allowed Innovimax, a company specializing in both the industrialization of documentary processes and the creation of high value-added portals, to develop a project in collaboration with the Laboratory for Computer Science at Orsay, a CNRS joint research unit. The project, submitted for ANR financing in 2008 and launched in March 2009, will enable the start-up to offer its customers new products compliant with the latest market standards and to develop business outside France.

From contacts to contracts

Testimony by Régis Bello, former President, Member of the De Dietrich Surveillance Board

“In Alsace, several joint CCI-Sciences meetings are held each year. They enable the management of both small and large companies to discover research laboratories—which they have often never heard of before—and to work with them to identify opportunities for innovative cooperation. As regards the De Dietrich chemical and pharmaceutical branch, we entered a research agreement with the Institut de physique et de chimie des matériaux de Strasbourg (IPCMS), a CNRS joint research unit which we did not know of. Visiting the unit, we realized they had the competencies required to work on a problem we could not solve concerning the repair of a corrosion-resistant cladding.”



CNRS distributor of knowledge

In 2008 CNRS took a new approach both to knowledge distribution and to the promotion of scientific culture. By focusing on scientific and technical information, publishing 120 new scientific works, and launching the CinémaScience festival, CNRS is addressing the major challenges facing our society.

FACILITATING ACCESS TO SCIENTIFIC AND TECHNICAL INFORMATION

In recent years, CNRS has been actively involved both in making scientific information more readily available and in offering infrastructure suitable for research applications.

The HAL server—developed by CNRS as a logical extension of the 2003 Berlin Declaration on open access to knowledge—received in 2008 over 20,000 articles and theses in all fields of research. HAL received the no. 1 rating worldwide in the Webometrics classification of institutional archives for the services it provides to the scientific community, and the no. 3 position for open archives.

The drive to make scientific information more accessible has also led the Scientific and Technical Information Institute (Inist)—the CNRS digital library—to expand its watch activities and to broaden the range of services it provides to the scientific community, in particular by increasing to 4,500 the number of scientific journals available online via themed portals. CNRS also concluded partnerships, either directly or via its Inist diffusion subsidiary, for services to businesses and organizations such as the Sanofi drug company, the Envirhônalp scientific consortium, or the Agence universitaire de la francophonie (AUF).

CNRS expanded the services it offers to the scientific community in 2008 through agreements with several important partners. A novel commercial agreement was signed with the Chapitre.com reference site to enable distribution of ten million documents. On a broader scale, CNRS represents France in the publication of Worldwidescience.org, an international knowledge distribution portal, alongside several other countries (see the sidebar). In parallel Inist worked in partnership with Atilf—a CNRS joint research unit specializing in linguistics and lexical data processing—to develop the new features for “TermSciences”, a unique multi-disciplinary and multi-lingual terminology portal.

Worldwide science.org

In June 2008
Inist joined the
WorldWideScience
Alliance, an initiative
by the American
Department of Energy

and the British Library, to encourage partners to participate in the development of a unique portal for sharing knowledge and scientific resources worldwide. The portal (www.worldwidescience.org) lets users search databases and information sites of the 44 contributing countries, in real time and at no cost.



> Public awards ceremony during the first edition of the CinémaScience festival held in Bordeaux, October 18-26, 2008.



> CNRS at the European Science City in Paris, November 14-16

PUBLISHING AND DIFFUSING SCIENTIFIC CULTURE

The French presidency of the European Union provided a good opportunity for two important European meetings. In October 2008 over 450 young people from the 27 EU member countries attended the Science and Citizens Conference in Poitiers. In November the Ville européenne des sciences exhibit inaugurated the Science Festival at the Grand Palais in Paris, and attracted 42,600 visitors. Discussions with the scientists led to a set of recommendations which was submitted to the French Ministry of Higher Education and Research.

CNRS once again held its annual gathering for the general public in the Trocadéro Gardens of Paris. Over 20,000 visitors attended the Couleurs sur corps exhibit to appreciate the nuances of how the body can be dressed in color, and to discuss this with scientists. The first edition of the international CinémaScience Festival in Bordeaux honored science, cinema—and imagination (see the sidebar).

A series of short films related to the International Year of Planet Earth was produced for youngsters by CNRS Images. The films can be downloaded as podcasts at no charge from the CNRS Web site. Finally a new CNRS institutional film, directed by Jean-Jacques Beineix, describes CNRS research activities from the standpoint of this major moviemaker.

In parallel with these scientific activities, CNRS Editions, the scientific publishing arm of the organization, published 120 new works in 2008. CNRS Editions increased its sales by 13% for the year, thanks in part to these new publications, along with the launch of a merchant Web site. The Cahier de vacances philo was one of the year's biggest hits in French bookstores with 20,000 copies printed.

Following its momentum of 2007, the CNRS Communications Office carried out various actions targeting a wide variety of audiences.

Science at the movies

From October 18-26, the city of Bordeaux was home to the first edition of CinémaScience.

This festival for the general public combines

science, film, and the imagination by offering feature-length films on topics related to CNRS fields of research. The films—many premiered at the festival—were followed by short debates on such complex issues as human cloning, autism, industrial pollution, and robotics. The jury, presided by filmmaker Régis Wargnier, rewarded British director Benjamin Ross for *Poppy Shakespeare*, the story of an improbable friendship in the world of psychiatry.

[MILESTONES]

Image production in 2008

90 audiovisual productions
(33 hours of programs)

4,799 DVDs sold (up 51% over 2007)

46 illustrated reports

over 1,000 photos ordered

over 499,500 visits to the CNRS Images
Web site (up 6% over 2007)

1,545,504 pages viewed

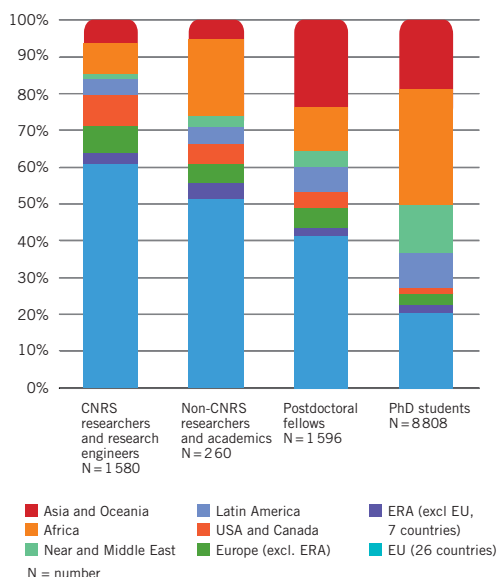
2 new virtual visits to laboratories

CNRS an organization with an international calling

In 2008 CNRS reinforced its support for research in predominant emerging countries while maintaining extensive cooperation with large industrialized countries. The French presidency of the European Union also provided a highly visible stage for demonstrating CNRS expertise within the European Research Area.

> Part of the network of 1,600 tanks of the Pierre Auger Observatory, installed in Argentina for the study of very high energy cosmic rays

Foreign research personnel, by geographical sector



Source: SCI (DVD Edition/Thomson Reuters)

CLOSE TIES WITH INDUSTRIALIZED COUNTRIES

In conjunction with almost 5,000 co-publications with Japan, the United States, and Canada in 2008, CNRS continues its support for interdisciplinary cooperation with major industrialized countries outside the European Union.

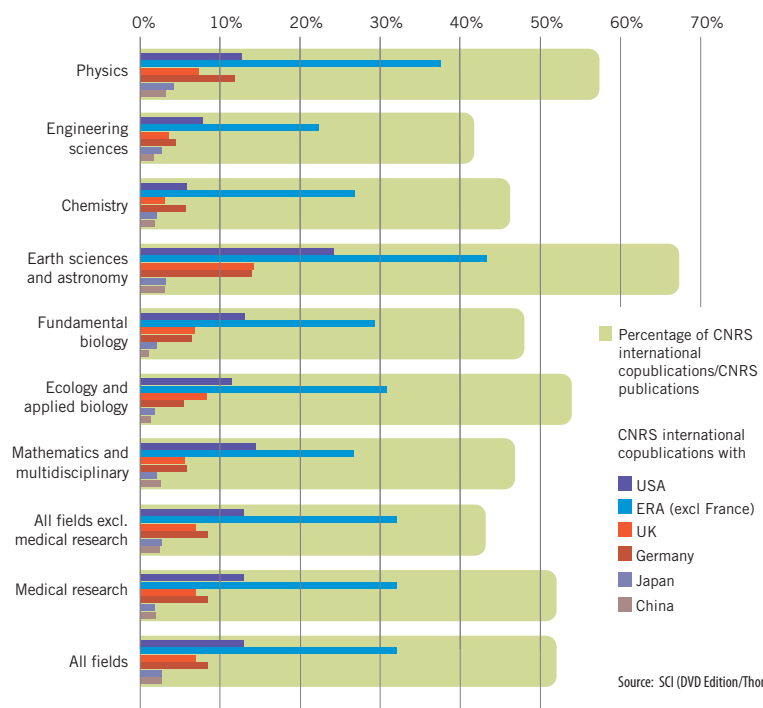
The 150th anniversary of Franco-Japanese relations has provided an opportunity to consolidate scientific cooperation with Japan in highly competitive fields including information technology, robotics, tribology, and fluid mechanics. Two new international associated laboratories were created, as well as a joint research unit with the National Institute of Advanced Industrial Science and Technology (AIST). A Franco-Japanese symposium was organized in Tokyo in December 2008 to encourage collaboration between both countries concerning the environment. This anniversary spawned numerous gatherings. The Japanese-French Frontiers of Science Program, an interdisciplinary symposium, was held for the first time in France at Roscoff in January 2008. Eighty promising young French and Japanese researchers attended along with eminent scientists including Professor Kobayashi, 2008 Nobel prize winner in Physics.

Following this success, CNRS co-organized another event in the United States. The Kavli Frontiers of Science was the first edition of this interdisciplinary colloquium and it attracted 70 young researchers recognized for their scientific excellence.

Once again, in North America, in 2008 CNRS and more generally France and Quebec united their competencies within the brand new Laboratoire international de technologies et applications des plasmas (Litap) in order to focus on the requirements and applications of plasma technologies. Extensive benefits are expected, notably concerning ion sources for accelerators, the development of new materials, micro-nanotechnologies, and sterilization.



**CNRS international co-publications
by field of research**



CONCERTED EFFORTS REGARDING CHINA, INDIA AND LATIN AMERICA

The year 2008 provided an opportunity to organize and intensify exchanges between CNRS and emerging countries.

With China, where CNRS has had an office since 1995, three associated laboratories and a research network were

established to mainly focus on earth sciences and astronomy, energy, and materials. In 2008 CNRS also initiated a program called "China - the Environment and sustainable development" in order to share competencies and federate existing research networks around seven key themes such as chemistry of the atmosphere, renewable energy, and water resources.

With India, in 2008 CNRS cemented partnerships in the country's new centers of excellence: information technology, health care, climate, and sustainable development. A major laboratory was officially opened in January: the International Associated Laboratory in Chemistry for sustainable development and interfaces (CDDI), created for the development of environmentally-friendly manufacturing processes. In September, a delegation headed by the CNRS President met with local officials and scientists from the two social sciences research centers of New Delhi and Pondichery. These centers are genuine launching pads for new collaborative efforts. Relations are being formalized in Latin American countries as well, with the historic cooperation of CNRS and IRD, now sharing an office in Chile (see the sidebar).

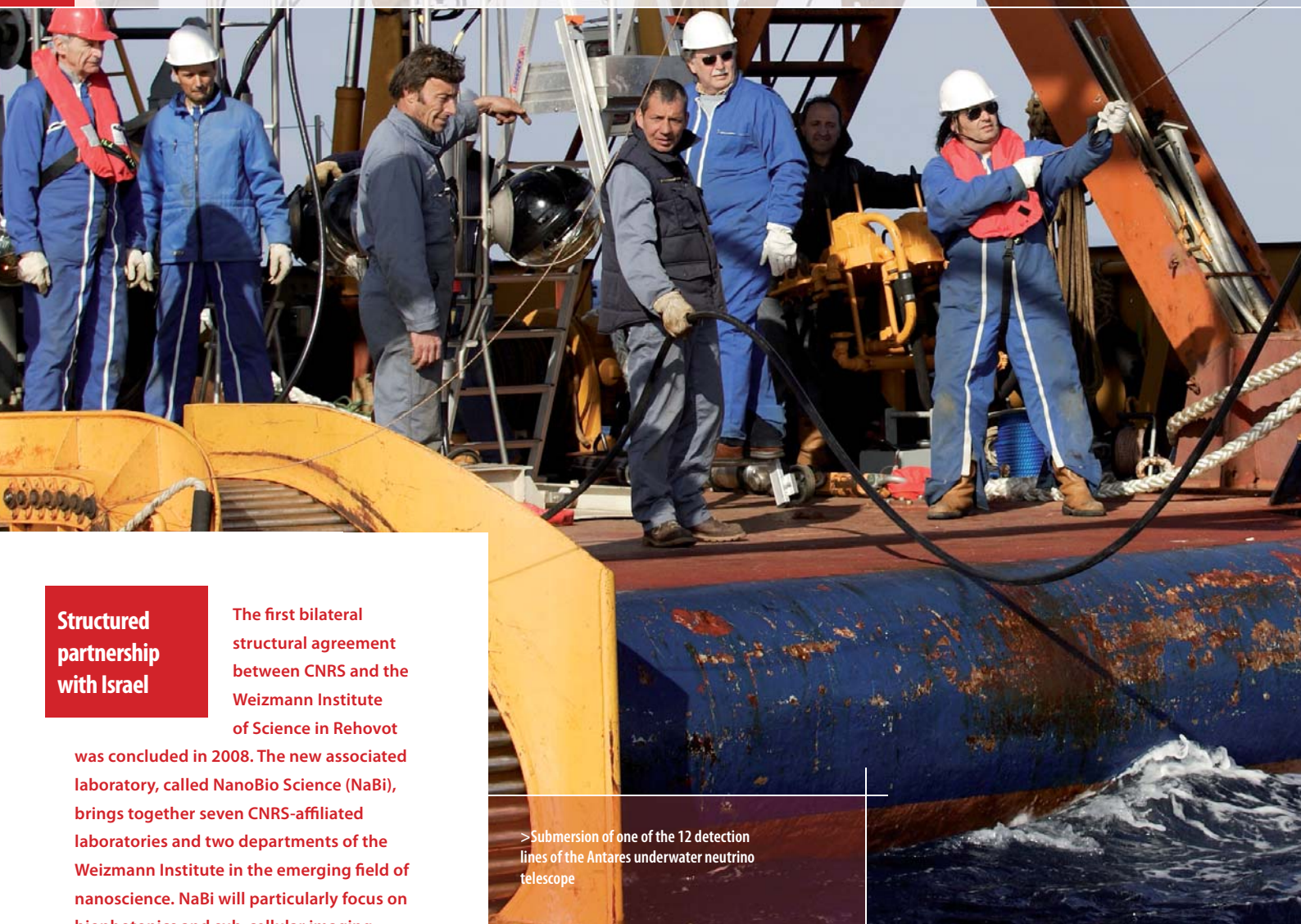
Further north, Mexico was also the site of notable collaboration. An international joint unit called the Laboratoire Franco-Mexicain d'Informatique et Automatique (LAFMIA) was created within the Instituto Politécnico Nacional de Mexico in March 2008. This new body includes fourteen Mexican and twelve French universities.

A joint office for CNRS and IRD in Chile

The goal of this first joint facility in Chile and Argentina, opened on September 1st 2008, is to explore

how both organizations can better pool their action in this region. It is part of a project created by AIRD*, bringing together a number of organizations which focus all or part of their research and training activities on assisting developing countries in the southern hemisphere. This cooperation may extend beyond ongoing collaborative activities to include the creation of international joint laboratories (on natural risks, the climate, etc.) while respecting the missions, characteristics, and competencies of both organizations. This increased cooperation between CNRS and IRD should contribute to the training and support for locals as well as to the scientific and technological research capacities in both countries.

* AIRD: Agence inter-établissements de recherche pour le développement



> Submersion of one of the 12 detection lines of the Antares underwater neutrino telescope

Structured partnership with Israel

The first bilateral structural agreement between CNRS and the Weizmann Institute of Science in Rehovot

was concluded in 2008. The new associated laboratory, called NanoBio Science (NaBi), brings together seven CNRS-affiliated laboratories and two departments of the Weizmann Institute in the emerging field of nanoscience. NaBi will particularly focus on biophotonics and sub-cellular imaging.

A first agreement with Romania

Bilateral collaboration with Romania was initiated in March 2008 with the creation of the Mathmode European

Associated Laboratory. It associates the Laboratoire de Mathématiques d'Orsay and the Institute of Mathematics Simion Stoilow of the Romanian Academy. The objectives: to improve visibility of Romanian research, to attract young top-level research scientists to Romania, and to thereby establish a first-rate center of excellence for research and training in pure and applied mathematics acting as a pilot program in this region of southeastern Europe.

PRIVILEGED TIES WITH EUROPEAN COUNTRIES

In 2008, CNRS maintained its extensive collaboration with European neighbors. Forty new collaborative programs were created in 2008, ranging from simple international scientific cooperation projects (27 in all) to the creation of nine European Associated Laboratories and a joint research unit, as well as the founding of three research networks.

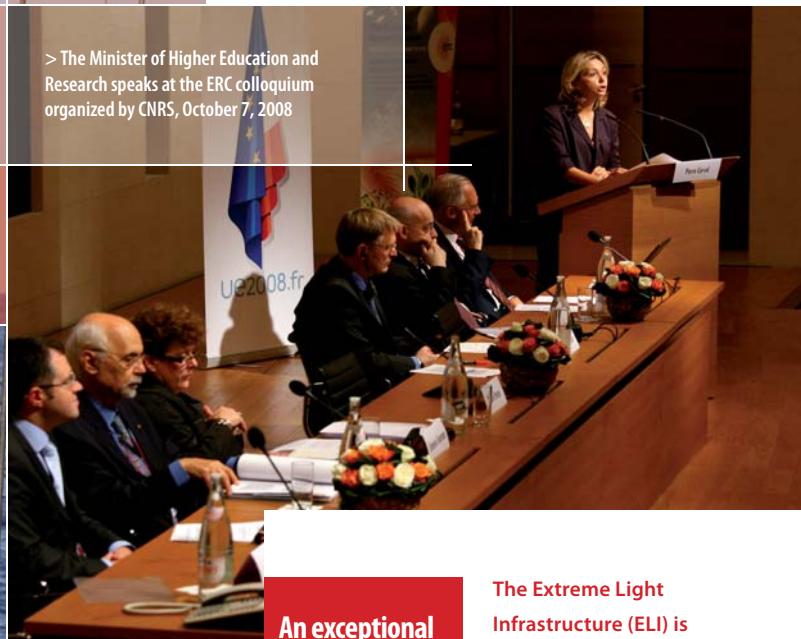
Germany is the leading partner country, all fields of research taken into account. CNRS and its German partners combined forces to create three new associated laboratories, three research networks, and a joint research unit based in Orsay. The latter represents the cornerstone of an extensive Franco-German collaboration in multimedia technologies.

Other agreements were concluded with the United Kingdom, Belgium, and Italy. CNRS also initiated its first organizational pact with Israel, a country "associated" with Europe, and its prestigious Weizmann Institute of Science. The agreement associates seven CNRS-affiliated laboratories and two Weizmann Institute departments to carry out research in the emerging field of nanoscience (see the sidebar).

CNRS has also demonstrated its intention to develop bilateral collaboration with the countries which have only recently joined the European Union. The organization finalized an agreement with Romania to create the first European Associated Laboratory for work in the field of mathematics (see the sidebar).



> The Minister of Higher Education and Research speaks at the ERC colloquium organized by CNRS, October 7, 2008



An exceptional laser

The Extreme Light Infrastructure (ELI) is a European program which, between 2008 and 2011, will bring

together 12 European partners to create the most powerful laser ever built. The CNRS Laboratoire d'optique appliquée (LOA), in a joint project with both the Ecole Nationale Supérieure de Techniques Avancées and the Ecole Polytechnique, was awarded €6 million in 2008 to govern, supervise, and coordinate the preparatory phase for the ELI project, which has a projected budget of €400 million and a scheduled delivery between 2013 and 2015.

AN UNFAILING COMMITMENT TO EXPANSION OF THE EUROPEAN RESEARCH AREA

Results of the first calls for projects issued by the European Research Council (ERC) have confirmed the attraction of CNRS and its leadership within the European Research Area (ERA). CNRS was rated the leading European organization in hosting Young Researcher laureates, and confirmed its position in 2008 with twelve laureates in the ERC Senior Researcher competition hosted by CNRS.

Besides the CNRS researchers' replies to calls for projects issued by the European Commission, CNRS initiated several major structural projects in 2008, including the launch of the preparation phase for the ELI project (see the sidebar). CNRS also confirmed its commitment to setting up several European Research Area Networks in order to coordinate programs on particular topics, such as ERA-NET Nupnet (see the sidebar).

CNRS took over the vice-presidency of two European associations, Eurohorcs (European Heads of Research Councils) and ESF (European Science Foundation), in 2008. The organization underscored its commitment to expansion of the ERA, which resulted in joint enterprises such as the development of a roadmap for a policy of excellence in European research, and the positioning of the principal organizations as concerns the Joint Programming launched by the Commission.

Finally, as part of the French presidency of the European Union, CNRS participated in major events relating to research. On October 7, 2008 it organized and hosted the first conference to review ERC operations. These events also provided an opportunity for the 14 main CNRS laboratories to welcome the principal executives of European research organizations under the auspices of the 5th European Conference on Research Infrastructures (ECRI 2008).

Nupnet: coordinating networked funding agencies

The ERA-NET Nuclear Physics Network (Nupnet), launched March

27, 2008, was selected as part of the 7th EU framework program following a proposal by the CNRS Institut national de physique nucléaire et de physique des particules (IN2P3). This three-year project is designed to set up a network of funding agencies and European ministries in order to organize financing of nuclear physics infrastructures and equipment for transnational scientific projects. It currently runs 18 programs from 14 EU countries.

CNRS stakeholder in territorial development

CNRS is involved in over 55% of the 2007-2013 Contrats de projets Etat-Région (CPER) projects. The organization is strengthening its ties with regional partners in order to make each region more competitive.



The first global project execution contracts were signed in 2008

Four regions have made global commitments with CNRS as part of the 2007-2013 CPER projects: Aquitaine, Auvergne, Burgundy, and Haute-Normandie.

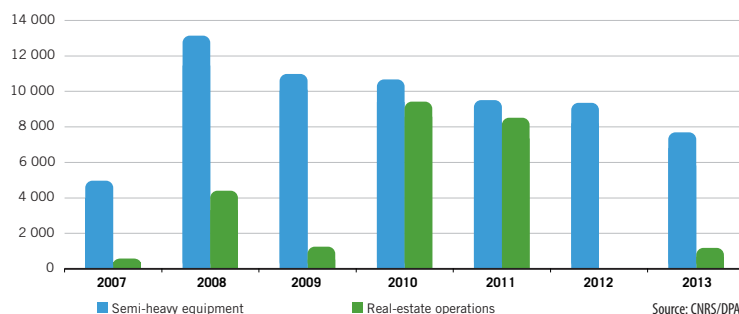
Several interregional projects were made possible by this wide-spectrum negotiation method, which maximizes their chances of success. Such is the case for the project to create a platform to support the Molecular engineering operation in the CPER for Burgundy, which is reinforcing the Consortium de Résonance Magnétique Nucléaire du Grand-Est. A similar approach was used for the project to support the Centre de Recherche Universitaire and the Centre de Compétences en nanosciences in both Haute and Basse-Normandie. Some projects will support multidisciplinary approaches. This is the case in Auvergne with the Prévoir (Préserver, évoluer et valoriser l'environnement) operation, which will create three platforms in analytical chemistry and physics; cell and molecular biology; and field instrumentation and computing resources.

FROM EXECUTING 2007-2013 CPER PROJECTS...

Of the 164 CNRS-sponsored operations covered by government-regional project agreements (CPER) for 2007-2013, 92 were already underway

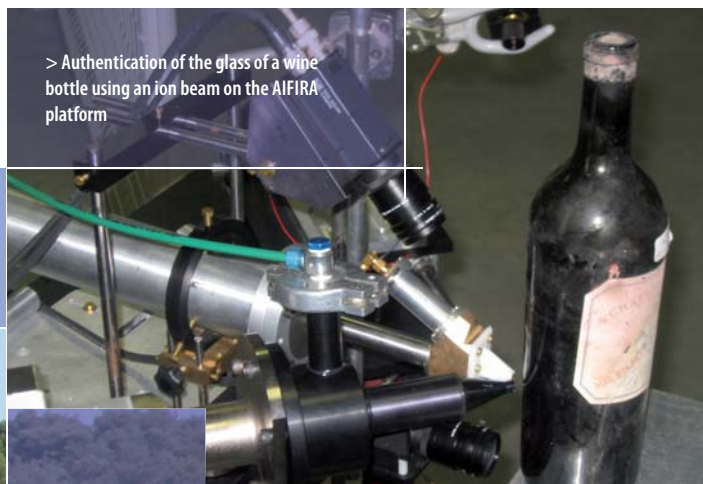
by the end of 2008 and twenty more will ensue in 2009. Operations started in 21 of the 25 regions which benefit from CNRS-supported projects. In most cases implementation of these operations is simplified through upstream negotiations resulting in project execution contracts, either for a given project, or through more global agreements with certain regions (see the sidebar as well as the chart on multiyear commitments). Fifty project execution contracts were concluded in 2008. They set the schedule for these operations and specify specific deadlines for each party's tasks, providing a genuine roadmap for project managers. In many cases negotiations of these contracts have been complicated by the fundamental changes underway in the French research system, involving the creation of new structures. This is particularly the case when real estate projects are involved.

Projected schedule of CNRS commitments (2007-2013 CPER), in €K





> Authentication of the glass of a wine bottle using an ion beam on the AIFIRA platform



Shared Objectives Agreement in Aquitaine

This agreement—between the Aquitaine region, CNRS, and the Université de

Bordeaux I, signed in early 2008—pools the support resources of two technological platforms: AIFIRA and PRISNA. The PRISNA project will provide a leading-edge nuclear spectrometry platform in the Aquitaine region to measure very low levels of radioactivity. This new platform will boost fundamental research, notably in neutrino physics, as well as applied research linked to regional interests (dating of wines, geographical origin of food products, research on fraud, etc.) and nuclear safety. The agreement will add to the equipment in the legacy AIFIRA platform, financed by the previous CPER (2000-2006). It will include a new version of the micro-bundle line intended to selectively irradiate individual cells while accurately controlling the total dose. It should enable more precise targeting and will provide the system with an epifluorescent microscope for studying precocious cell response mechanisms in cells after a collision with charged particles. The platforms at the Gradignan-CENBG campus will also help create a research cluster to explore a great variety of topics and offer substantial visibility on both a French and a European level.

> Southern view of the Ecotron in Montpellier, dedicated to the study of ecosystems and of biodiversity, and built thanks to both a partnership with the Languedoc-Roussillon region and support from the General Council of Hérault

... TO CREATING STRONGER PARTNERSHIPS WITH REGIONS

Exchanges between CNRS and Regional Councils in each region—often when signing CPER project execution contracts—have identified 30 important themes. Following these

exchanges, negotiations began in 2008 in order to conclude Shared Objectives Agreements (COPs) as well as bilateral agreements. Twenty-two are sure to be signed, such as the one with Aquitaine (see the sidebar); others should be finalized soon. The Shared Objectives Agreements are intended above all to contribute to the development of platforms or to the creation of new teams and themes. A bilateral agreement, usually involving a budget between €10 and €40 million, is designed to provide both national and international visibility to the region. These agreements also contribute to economic development either by outsourcing services to local small businesses and industrial concerns or by creating start-ups. Both types of contracts offer the possibility of mobilizing significant human and material resources at promising sites, while also contributing to land-use planning through the creation of research clusters. Universities are closely involved in this process for they provide the human resources to work on these projects.



> Inauguration in Toulouse on July 9, 2008 of the RTRA supporting foundation Sciences et technologies pour l'aéronautique et l'espace (STAE)

CNRS and Advanced Thematic Research Networks (RTRA)

RTRA	Place	Field
Sciences mathématiques	Paris	Mathematics
Sciences et technologies pour l'aéronautique et l'espace	Toulouse	Aerospace Science and Engineering
Triangle de la physique	Versailles	Physics
Digitéo		Information Sciences and Technologies
Centre international de recherche aux frontières de la chimie	Strasbourg	Chemistry and its interfaces
Nanosciences aux limites de la nanoélectronique	Grenoble	Nanosciences
Fondation Pierre-Gilles de Gennes pour la recherche	Paris	From molecules to therapy
Finovi – Innovations en infectiologie	Lyon	Infectious diseases
École des neurosciences de Paris – Ile-de-France	Paris	Neurosciences
Toulouse Sciences économiques	Toulouse	Economics of business
École d'économie de Paris	Paris	Economics
Réseau français des instituts d'études avancées	Lyon, Marseille, Nantes, Paris	Advanced Studies

RENEWED PARTNERSHIP WITH HIGHER EDUCATION

With 120 institutions of higher learning and research involved in four-year contracts, CNRS co-directs 866 joint research units, managing a budget of nearly €1.42 billion, including €145 million in direct support and around €1.275 billion in human resources. This association

with universities drives CNRS regional activities. It was reinforced in 2008 following negotiations concerning the C 2009-2012 contracting process involving 26 organizations located in Alsace, Lorraine, and the Ile-de-France. CNRS supports institutions of higher learning in becoming more visible scientific entities. Negotiations concerning this new wave of four-year contracts also provided an opportunity to apply recommendations from the Aubert Commission. In order to simplify unit management, the Commission recommended a clear definition of the unit's responsibilities for scientific coordination whenever possible by reciprocally granting global management delegation authority either to CNRS or to the joint project organization.

As a partner to universities, during 2008 CNRS contributed to projects for the Ministry of Research's new Campus Plan operation. The Campus Plan is designed to renovate and boost existing campuses. It also calls for federating the campuses of the future by participating in several pilot programs. In three cases—Grenoble Université de l'Innovation, Plateau de Saclay, and Nicolas de Condorcet-Aubervilliers, CNRS has agreed to be a leading sponsor along with the government and the institutions themselves.

Finally, the first calls for projects and related fundraising were launched in 2008 for the 11 Scientific Cooperation Foundations created in 2007. The 12 Advanced Thematic Research Networks rely heavily on these Foundations. CNRS continues to respect its commitments in this area: as the second largest source of funding for SCFs with €14.6 million, the organization has provided funding each year since the Foundations were created.

CNRS employer

The CNRS human resources policy for 2008, founded on values of public service, continued to apply innovative methods to achieve its goals: to attract the best possible talent and to offer each employee a career suited to both the organization's scientific priorities and to the employee's personal ambitions.



> Diver at Terre Adélie in the Antarctic

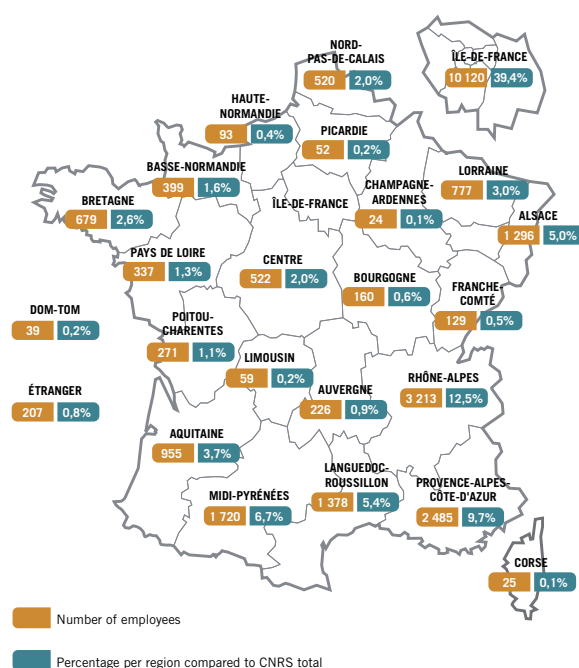
SELECTIVE AND PROSPECTIVE RECRUITMENT

In a general context marked by globalized recruiting, little interest among the younger generation for careers in science, risk of a demographic breakdown, and fundamental changes

within the research environment, in 2008 CNRS laid the foundation for seeking talent in the 2009-2013 period. This task, carried out in collaboration with its research departments, is performed by the Observatoire des métiers et de l'emploi scientifique (OMES) which applies its expertise in this domain to identify and analyze the evolution of the CNRS' 250 professions and 40 disciplines. This allows CNRS to pro-actively renew the competencies necessary for scheduling and achieving its scientific objectives.

In 2008, a total of 922 researchers, engineers and technicians joined CNRS. The organization runs competitive-entry processes to ensure selectivity and excellence in its recruitment. Foreign researchers represented just over 26% of all hiring in 2008, and on average there were 20 candidates for each position available. In 2008 as in 2007, biological sciences attracted the largest number of researchers, with 19% of the total number of researchers hired each year. Next were the fields of information technology and engineering (17%), chemistry, and the humanities and social sciences (16% each). As regards engineers and technicians, most were hired in scientific instrumentation (21%), biology (16%), and scientific data processing (15%). Some positions were more difficult to fill notably due to strong demand in the job market for electronics and mechanics.

Geographical distribution of the 25,686 permanent employees at CNRS



Source: CNRS/DRH

Improved prevention of professional risks

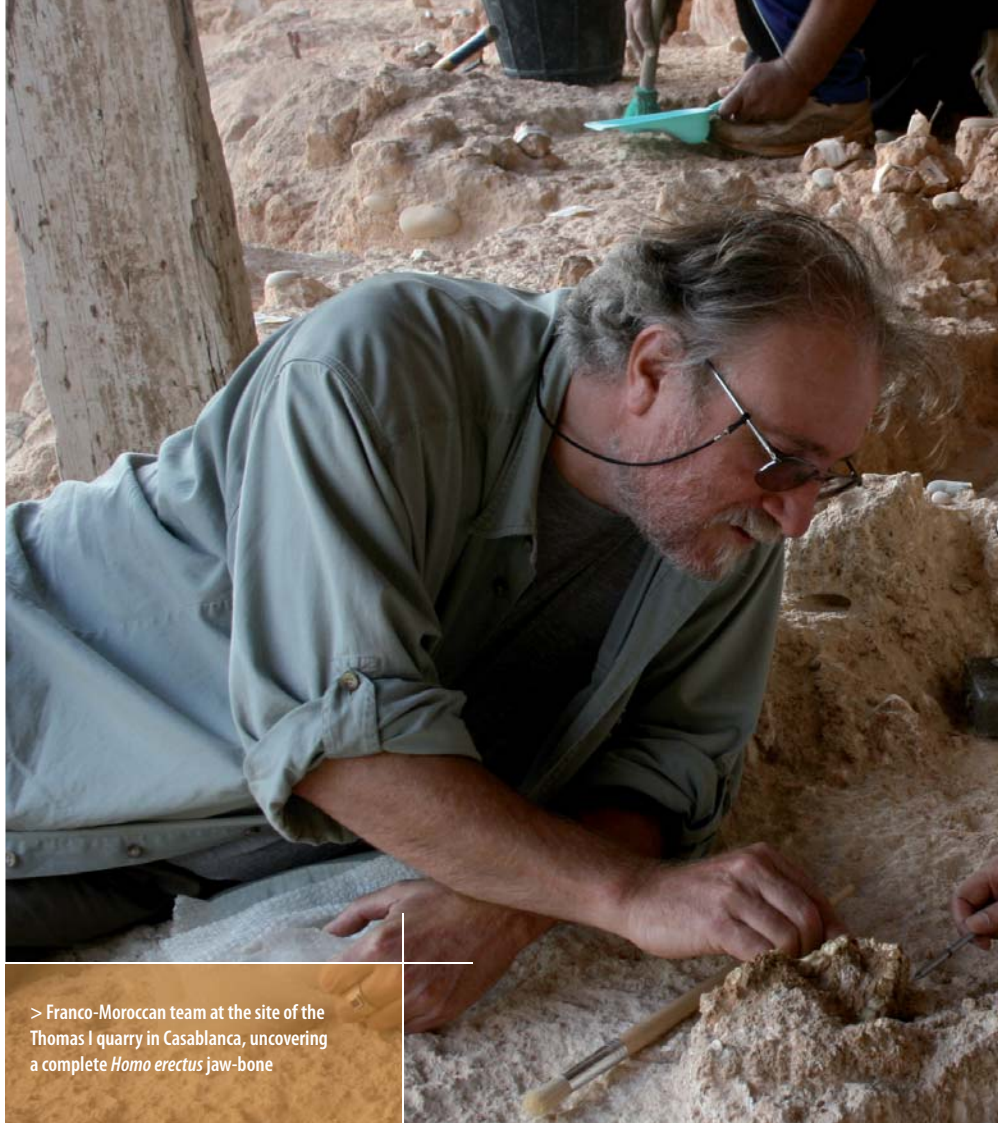
Following the very encouraging results obtained for several years now in safety management, in 2008 CNRS

undertook a global risk assessment method based on the creation and tracking of "unique documents". The program has received strong support within the units, resulting in the definition of targeted action programs which provide a reference for 2009.

Helping managers take on new responsibilities

In 2008, the Institut de perfectionnement à la gestion de la recherche (IPGR)

was renamed the Institut du management du CNRS (IMC) and its missions were reinforced. In order to prepare future CNRS managers to optimally perform their jobs, IMC overhauled its training programs (for new unit directors, high-potential individuals, etc.). The goal is to encourage the development and sharing of knowledge on the evolution and organization of research, to understand the challenges of management, and to master the skills required for the strategic management of teams and projects.



> Franco-Moroccan team at the site of the Thomas I quarry in Casablanca, uncovering a complete *Homo erectus* jaw-bone

ASSISTANCE AND ATTRACTIVE CAREERS

Increased focus on proximity of human resources over the past few years continued in 2008. CNRS has extended to recently-hired researchers

the career assistance program available to engineers and technicians, when they join and during their first year. Likewise, the organization has continued to roll out its post-assessment tracking program for researchers whose performance assessment by the National Committee reveals scientific, professional, or personal difficulties. This program, which involved about 4% of the researchers assessed in 2008, is intended to help them turn around the situation.

In parallel, the program begun in 2007 to provide more attractive careers was intensified in 2008. Around 1,300 promotions were offered to researchers in the 2007-2009 time frame, a 25% increase over 2004-2006. For engineers and technicians, CNRS increased the number of rank changes by 40%. As concerns grade, the target is a 15% promotion rate by 2011.

For training, CNRS mainly invested in thematic workshops. One hundred were established in 2008 on such topics as miniaturization sciences or quantitative methods in the social sciences, intended to bring together specialists from different fields around a given topic. Another priority was the careers program designed to cover all the various facets of a particular activity.

Finally, CNRS has improved the follow-up and training of its top executives and managers by creating the new Institut du management du CNRS (see the sidebar) and by setting up an annual performance and development evaluation.



REASSERTING SOCIAL RESPONSIBILITY

As part of its commitment to employing people with disabilities, CNRS created the Insertion Handicap team in the summer of 2008. It coordinates all actions in this area covered by an agreement signed with the labor organizations in 2007. In 2008 CNRS hired 50 engineers and technicians in various professions, and three researchers in the fields of chemistry and the human and social sciences. It also ran a trial program to raise public awareness concerning the challenges facing people with disabilities (see the sidebar).

Determined to assist in the job placement of the temporary personnel it employs, in 2008 CNRS set up personalized assistance programs which will gradually be extended to other regional offices (see the sidebar).

Also very attentive to professional equality, the organization carried out a survey in the fall of 2008 on gender equality in HR practices. This should result in a 2009 action plan managed by the Mission for the Place of Women at CNRS.

Furthermore, in 2008 CNRS initiated a far-reaching program to take into account suffering within the workplace, which should lead to a 2009 charter for the prevention of psychological harassment.

Finally, CNRS has reviewed the priorities of its social policy. The organization has decided to reinforce the assistance it provides to families, notably those with small children. CNRS has defined new methods to distribute universal personal services vouchers (CESU), implemented housing assistance programs (for buying or renting a home), and provided support for solidarity programs. These actions will help make CNRS more attractive to both job candidates and current employees.

[MILESTONES]

Raising awareness of disabilities

In 2008 CNRS organized **6** disability awareness sessions on an experimental basis. They were provided to **83** unit directors and department managers in order to facilitate the hiring and integration of people with disabilities. These actions will be extended to all **19** CNRS regional offices in 2009.

New measures to assist temporary employees

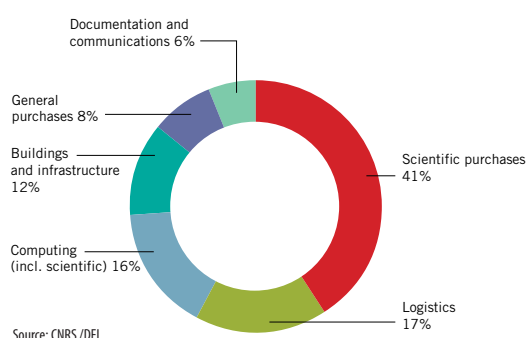
The CNRS Midi-Pyrénées Regional Office, in partnership with the Agence pour

l'emploi des cadres (Apec), set up a program in 2008 to assist temporary employees hired for project-based research contracts. Through this program, CNRS has provided personalized assistance to 32 PhD students, post-doctoral students, engineers and technicians to help them either find jobs or continue their training. This initiative will gradually be extended across the nation in 2009.

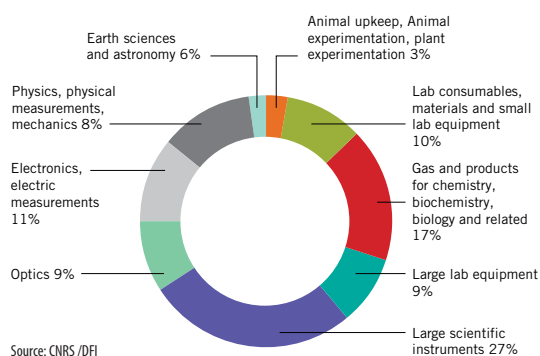
CNRS buyer

Besides setting up a series of framework agreements intended to simplify equipment procurement procedures for laboratories, in 2008 CNRS initiated a socially-aware purchasing policy defined in a sustainable purchasing charter.

Expenditures by type of purchase



Expenditures for scientific purchases



The top 10 CNRS suppliers

1	Fram Agences
2	Compagnie IBM France
3	Dell
4	Swets Information Services
5	Électricité de France
6	Fisher Bioblock Scientific
7	VWR International
8	Sigma Aldrich Chimie
9	Dominique Dutscher
10	France Systèmes

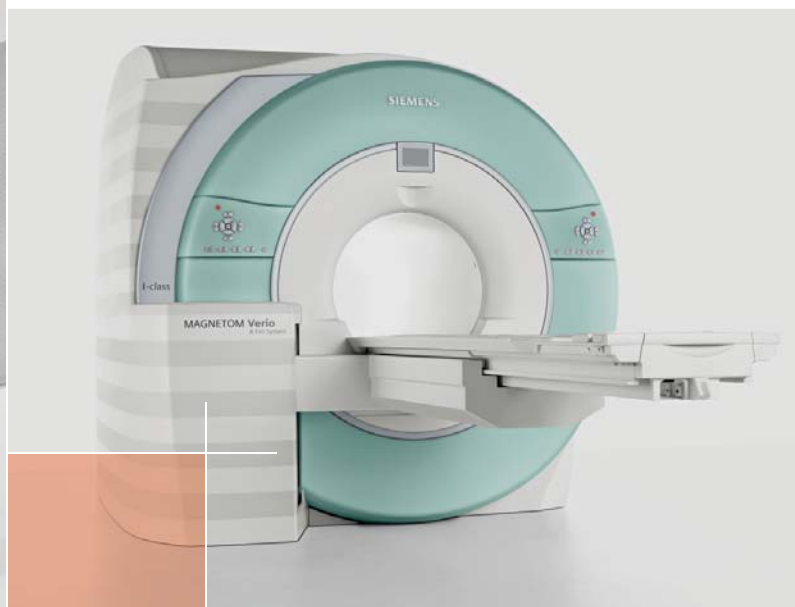
SOCIALLY-AWARE PROCUREMENT

Determined to take into account environmental concerns while improving economic and social performance, in May 2008 CNRS adopted a sustainable

purchasing charter. It includes ten commitments for all future purchases by laboratories. The goals are to reassess our consumption habits and adapt them to real needs, to consider a product's life cycle, and to factor in environmental criteria while choosing the most attractive offer from a price standpoint.

On the quantitative level, CNRS purchases in 2008 totaled €647 million, up 1.4% over the previous year. Most purchases concerned scientific equipment (41%), followed by logistics (33%), IT (16%), buildings and infrastructure (12%), and to a lesser extent documentation and communications (6%) (see the figure). Over 30,000 suppliers in a broad range of industries provided the goods and services required by CNRS activities (see the table). A large portion of CNRS suppliers is found in the Interprofessional Committee of Laboratory Suppliers (CIFL), and over 60% of their member companies have fewer than 20 employees. CIFL companies were awarded over one-third (€230 million) of all CNRS purchases in 2008.

The breakdown of scientific purchases once again shows scientific instrumentation as the leading expense item (€70 million), while the share of revenue allocated to the fields of physics and mechanics increased this year from 10% to 12% (€31 million). The proportion of expenditures in other fields of research was similar to the previous year (see the figure).



> MAGNETOM VERIO © spectrometer with 3 teslas

A first in Europe

The first MAGNETOM VERIO® spectrometer in Europe with 3 teslas was installed at the Centre

d'Exploration Métabolique par Résonance Magnétique (CIMEREM) in Marseille in late September 2008. CNRS launched an international tender for this €4.7 purchase, including €1.3 million financed by local government organizations (regions, departments, and cities). This unique device, provided by Siemens Healthcare, enables a complete exploration of the human body during a single examination.

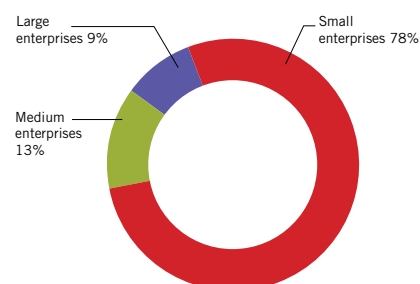
SIMPLIFYING LABORATORY-VENDOR RELATIONS

This work continued in 2008 with the implementation of national scientific framework agreements in October. This new process allows laboratories to apply simpler and faster procedures than traditional tenders, while ensuring the legality of purchases by managing subsequent purchases via a national contract. Such a process concerns investments in heavy and semi-heavy scientific equipment worth several hundred million euros. CNRS has also overhauled its automatic system for tender renewal involving suppliers covered by the agreements. The new procedures resulted in a significant reduction in procurement lead times (in 2008 they fell from four months to one) as well as reduced administrative costs. Sixty-eight contracts were finalized by the end of 2008. Over 15 very large equipment purchases were completed in just two months, thereby considerably reducing specific procedures such as multi-vendor acquisitions involving international calls for tender (see the sidebar).

Other types of purchases concern items ranging from €4,000 to €133,000. In 2008 CNRS published over 6,000 calls on its PUMA Web portal where suppliers can subscribe to alerts and reply only to tenders issued by laboratories

In 2007 CNRS undertook to modernize the regulation of its procurement process by automating purchasing procedures.

CNRS commitments to suppliers, by company size

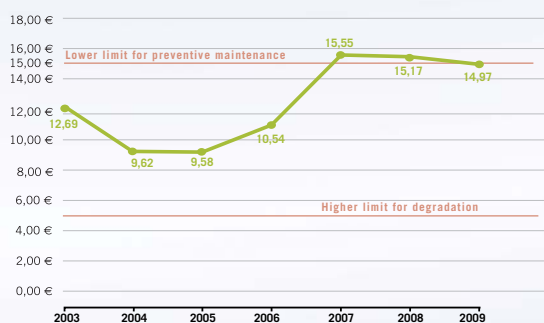


Source: CNRS / DFI

CNRS real estate operator

By rehabilitating 7,606 sq. meters of gross floor area and commissioning 6,024 sq. meters of gross floor area for new laboratory buildings, in 2008 CNRS sought to strike a balance between refurbishing and rationalizing its property while purchasing new facilities to meet research requirements.

Variation in maintenance cost per sq. meter between 2003 and 2009, compared to the target cost of €15 for preventive maintenance



Source: CNRS /DFI

RATIONAL, CONTROLLED PROPERTY MANAGEMENT

As part of its 2007 refurbishing policy for its real estate assets, CNRS spent €12 million in 2008 for both routine and scheduled maintenance

of its buildings. This represents a total covered surface of over 800,000 sq. meters across 155 sites. The objective of these expenditures is to maintain the property in a condition suitable for scientific activities and ensuring employee safety. This refurbishing is the cornerstone of a broader program to develop a master plan for real estate by 2009. It provides a prospective view of the operations required to improve asset quality and their suitability to the needs of scientific research for the 2009-2013 time frame. Another important component in modernizing CNRS real estate is the project to develop a real estate information system, launched in 2008. The project will provide a tool for CNRS to oversee all the aspects of its real estate management, which the government has declared a top priority. This new system, designed for both daily operations and for decision support, will provide accurate infrastructure cost data for controlling expenses.



> IRI building in Lille: interdisciplinary project hotel completed in 2008

Four important achievements of 2008

Refurbishing an inhabited space in Paris
CNRS fully financed the €5.3 million in extensive renovations

for the Institut de Biologie Physico-Chimique (IBPC) building, made available to CNRS in 1997 for a fifty-year period by the Fondation Edmond de Rothschild. This operation, carried out in an inhabited space over several years, was completed in late 2008. It includes the refurbishing of 4,617 sq. meters and the construction of a 231 sq. meter crystallography laboratory.

MODERNIZING PROPERTY WITH LOCAL AUTHORITIES

In parallel with refurbishing existing property, expansion of research activities generates new requirements. Examples include the installation of extremely powerful equipment, or hosting teams as part of interdisciplinary projects or at the frontiers of knowledge (see the sidebars). The strategic importance of these operations for site development leads to joint investments associating CNRS and its regional partners—particularly with territorial and local communities which both help modernize their public heritage. Several of these projects were completed in 2008, representing a consolidated investment of €21.4 million. The French government recovery plan initiated in early 2009 will help accelerate several projects launched in 2008, such as an extension to the IN2P3 data center in Lyon-Villeurbanne (a €2.8 million project) or the construction of a new building at the Néel Institute in Grenoble (€5.6 million).

Scientific and economic rationalization in Vitry-Thiais

In order to reorganize scientific activities at the East Paris Institute of Chemistry and Materials Science (ICMPE), a site hosting five Chemistry units at Vitry-Thiais was entirely reconfigured between 2004 and 2008. This project, with a total cost of €3 million, will generate savings on the order of €300 thousand per year.

New applications for NMR in Villeurbanne

The pluridisciplinary Centre de Résonance Magnétique Nucléaire hauts champs (CRMN) in Villeurbanne was created in order to identify new applications for very high field MNR: cancerology, analytical chemistry and biology applications, instrumentation and technical development. The construction phase has been completed and the center will soon host the world's first 1,000 MHz MNR. The region has paid €4.3 million for the facility, which has a gross floor area of 2062 sq. meters. CNRS was the contracting authority, and supervised the project.

A Lille hotel for an interdisciplinary project

The Interdisciplinary Research Institute (IRI), completed in May 2008, provides a single structure to bring together biologists, physicists, IT specialists, chemists and engineers working on subjects related to the integration of molecular components in complex biological systems. CNRS was the principal contractor for the construction of the building, with an overall budget of €6.9 million.



> New administrative offices of the Modane underground laboratory, built thanks to a partnership between research organizations and territorial communities

CNRS stakeholder in modernizing government

The new phase in PRAGMA (programme de modernisation de l'administration et de l'appui à la recherche) was launched in 2008 with the unveiling of a purchasing card, the conclusion of the first service level agreements, the start of internal control operations, and the implementation of a new master plan for information systems.

> Lightning observed via a mobile laser at the Langmuir station of New Mexico Tech, in the United States.

NEW MONITORING TOOLS BACKED BY A RENOVATED INFORMATION SYSTEM

In 2008 CNRS initiated a new phase for renovating its information systems, adopting a 2009-2013 master plan. The plan has two fundamental goals: to optimize the legacy system, and to migrate

towards a new information system able to support the CNRS strategy. It leverages investments made during the previous 2004-2007 master plan, such as the implementation of the SAP software package to overhaul financial, accounting, and human resource applications. In order to address reforms required by CNRS, the new master plan opens up three new fields covering a broad range of requirements, from operations to decision support and governance. Priorities in this new plan include developing a new information system for laboratories designed to handle all activity management issues; creating a decision support information system for governing the organization and its Institutes; and finally designing a new system for managing relations with partners. All told, CNRS will spend over €40 million on the development and overhaul of legacy applications.

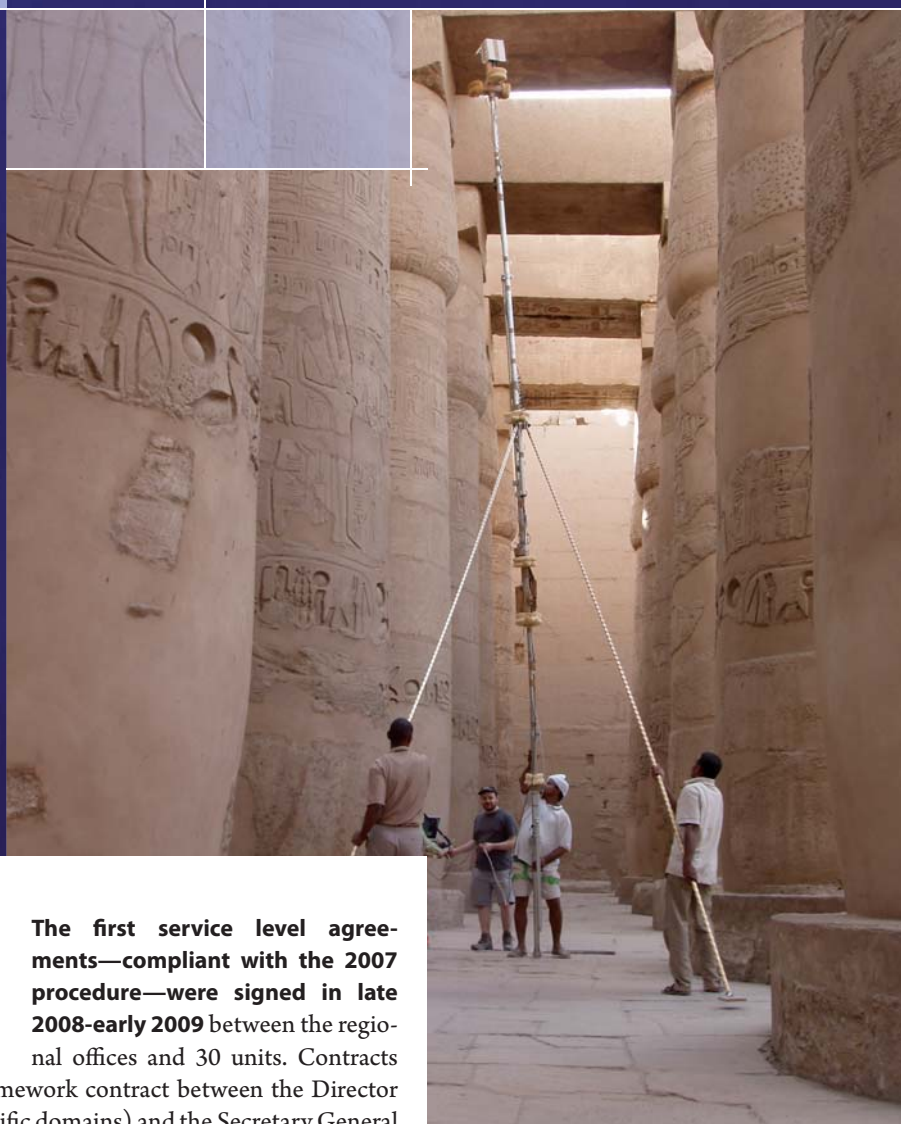
Improved assistance for the organization's strategic governance, as required by the French organic law concerning finance laws (LOLF), was provided through an experiment to objectively analyze collective performance of units and of their teams. This primarily descriptive analysis is provided in a document which collects and summarizes information applicable to all unit configurations in all fields of research. It is mostly based on data available in the files provided by units with each wave of contracts, as well as in their activity reports. The purpose of the analysis is to provide decision support for CNRS management and to create a strategic plan for unit directors to assist them in their tasks. An initial test program will take place in 95 research units for the 2009-2010 contracting process, and CNRS will provide certain adaptations for future contracts based on proposals by a dedicated workgroup.

A QUALITY OF SERVICE COMMITMENT TO BENEFIT LABORATORIES

are based on the May 2008 framework contract between the Director General (representing the scientific domains) and the Secretary General (for the technical support domains). These agreements formally define the commitments of research support functions towards research units and their directors. They are intended to enable an objective measurement of the quality of the administration's services, based on indicators defined in the SLAs. Initial results will be consolidated in late 2009, and a Commitment Watch Group will enable the unit directors to indicate their expectations in view of continuous improvement. At this stage, the major commitments from the technical support domains concern key domains for laboratory activities: support for unit directors and researchers, quality of management concerning personnel and financial resources, information system availability, and responsiveness of procurement procedures.

To facilitate procurement, in 2008 CNRS launched a purchasing card for its laboratories. It complements the system set up in 2006 and 2007, via the introduction of payment cards for travel and accommodation expenses. The new card plays two roles. First, it simplifies the procedures for local purchases, registration for conferences, purchases over the Internet, or more broadly any purchase under €2000. Second, it shortens the supplier payment period to four days. Following a test phase, the new card was initially made available to one-third of the regional offices in 2008; it will be available to laboratories all regional during the first half of 2009. Besides simplifying purchases for laboratories, this new card marks the start of a fully dematerialized expense management system. This is part of the program to improve productivity in the organization's accounting and finance departments.

The first service level agreements—compliant with the 2007 procedure—were signed in late 2008-early 2009 between the regional offices and 30 units. Contracts



> Taking inventory of the 134 columns in the hypostyle room of the Amon-Rê temple at the Karnak site, in Egypt

INTERNAL AUDITS TO CONTROL RISKS

The new plan established in 2007 in order to control risks related to the organization's activities became fully operational in 2008. The CNRS Internal

Audit Office drafted an audit plan, approved by the Audit Committee, concerning five regional offices, three laboratories, and three cross-functional topics: real estate, the payroll process, and the software for managing budgets, finance, and accounting. It was based on risk assessments carried out for each process. Verifications and recommendations concern regulatory compliance of activities, efficiency of processes in administrative services, application of management's instructions, and internal audit quality which is vital for reliable financial reports. The audits enable both the CNRS Board of Directors and Senior management to ensure operations comply with the organization's risk control objectives. The Internal Audit Office, in collaboration with both the main accounting agency and the CNRS Director of Finance, released a specific charter in 2008. In parallel with the actions of the Internal Audit Office, services in the regional offices launched an internal accounting and financial audit of laboratories. This audit also covers the application of procurement procedures. One-third of the units were audited during 2008 following a pre-defined schedule. General management approves implementation of corrective actions proposed by the audited entities and based on conclusions of the Internal Audit Office. The Internal Audit Office is also responsible for tracking and implementing these actions, beginning in the second half of 2009.

> Researcher-diver and benthic fauna under the pack ice

ON-LINE VOTING

The 2008 election campaign to renew the mandates of the 560 members elected to sections

of the National Committee, the bodies which oversee scientific evaluation and researcher recruitment, was organized electronically, eliminating paper whenever possible. This was the case for viewing, rectifying, and controlling lists of registered voters; submitting candidacies; exchanging information with voters and candidates; and for procedures relating to the actual voting (display of candidate lists, information on candidates, and results concerning the various rounds of elections). Thanks to online voting, only three people were needed to oversee these tasks, compared to eight in 2004. This reduced the cost of the election process by 35%, while increasing the electorate due to the automatic registration of non-CNRS personnel from joint research units. In 2009 CNRS will test another aspect of online solutions, with a vote via the Internet to elect the Board of Directors.

Budgetary and financial highlights

This section presents a summary of the CNRS budget execution and the main changes in the preparation of the organization's 2008 financial statements. For further information on the financial statements, please refer to the financial document inset included in this annual report.

> Character generator

OVERALL BUDGET OUTCOME

In the accounts for the 2008 financial year (excluding calculated expenditures), CNRS reported €2,901.49 million in revenue and €2,881.98 million in expenditures. The table below presents the situation by cost center and revenue category:

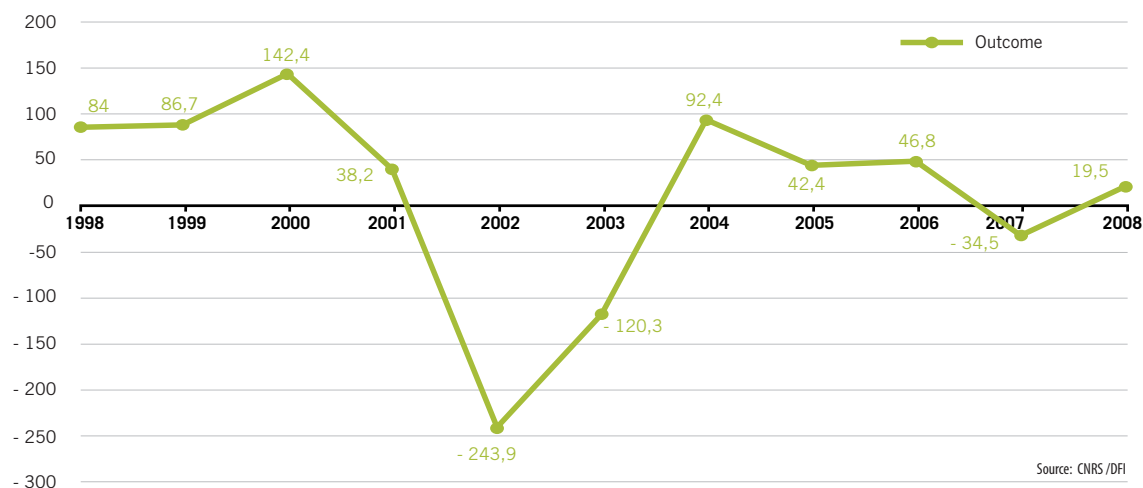
2008 budget execution (€ million)

2008 budget		Executed budget
Expenses		2 881,98
A1	Research units	2 419,12
A2	Common actions	238,51
A3	Support functions	224,35
	Outside cost center	
Income		2 901,49
R1	Subsidy for public service expenditures	2 331,36
R2	Finalized contracts and support	421,82
R3	Revenue from technology transfer and services	71,08
R4	Other subsidies and revenue	77,24
Balance		19,51

Source: CNRS /DFI

Contrary to 2007, the budget outcome was positive and provided a €19.5 million surplus. This improvement is due in particular to the increase in CNRS-generated resources.

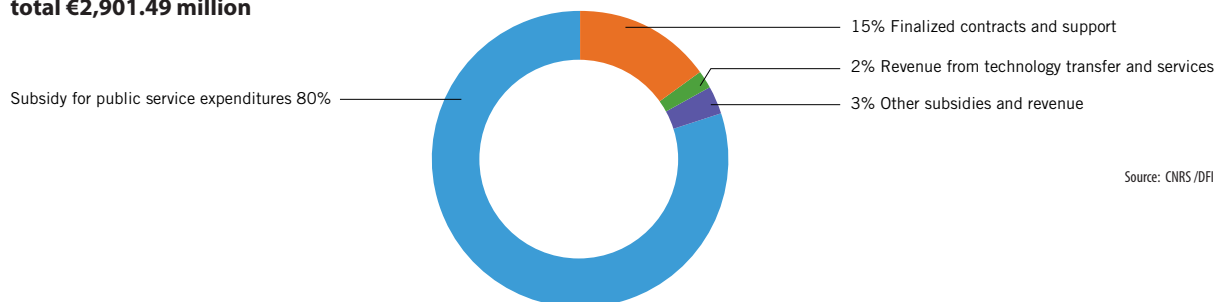
Change in budget outcome 1998-2008



REVENUE

The figure below shows CNRS resources by major revenue category:

Revenue by category for 2008:
total €2,901.49 million



Source: CNRS /DFI

Change in revenue 2003-2008

	Subsidy from Ministry of research		Other resources		Total
	M€	%	M€	%	M€
2003	1 751,16	84 %	325,71	16 %	2 076,87
2004	1 950,87	84 %	358,49	16 %	2 309,36
2005	2 046,66	84 %	390,38	16 %	2 437,04
2006	2 217,90	79 %	592,06	21 %	2 809,96
2007	2 312,69	82 %	519,84	18 %	2 832,53
2008	2 331,36	80 %	570,13	20 %	2 901,49

Source: CNRS /DFI

Revenue increased by 40% between 2003 and 2008 and by 2.4% (+€68.96 million) over the previous period. These results reflect a 33% increase in subsidies from the Ministry of Research (up 0.8% over 2007) and a 75% increase in CNRS-generated resources (+9.7% over 2007).

The share of CNRS-generated resources increased significantly over the period, to 20% from 16%.

Origin of contractual resources

Source of financing (M€)	2001	2002	2003	2004	2005	2006	2007	2008
EU	34,61	42,00	37,09	52,11	63,02	79,98	51,38	50,00
Public institutions and enterprises	37,19	29,39	40,34	32,72	42,54	127,21	119,42	193,23
Incl. ANR					2,37	66,00	73,85	130,00
Ministries	11,91	19,15	33,22	45,81	39,29	25,30	13,27	8,00
Private sector	37,37	40,67	38,20	39,16	31,45	32,58	50,04	41,00
Communities	2,95	3,02	3,97	5,23	5,65	9,06	9,49	10,00
Total	124,03	134,23	152,82	175,03	181,95	274,13	243,59	302,23

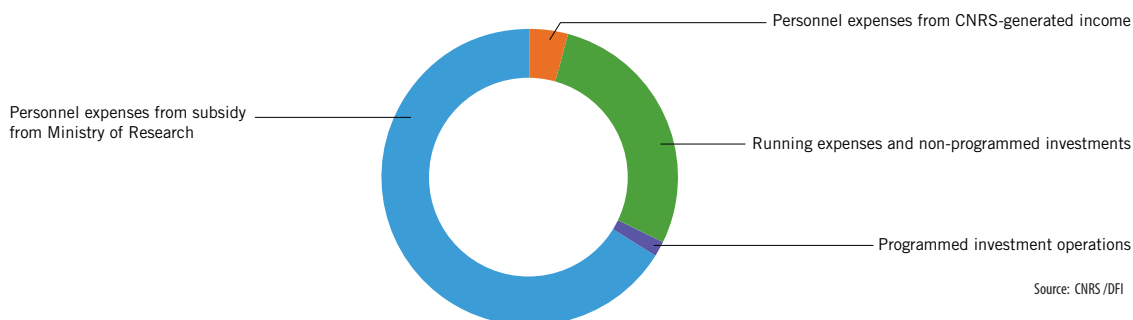
Source: CNRS /DFI

Research contracts are the primary source of CNRS-generated resources, stemming for the most part from public financing—ANR provided 43% of contractual resources.

EXPENSES

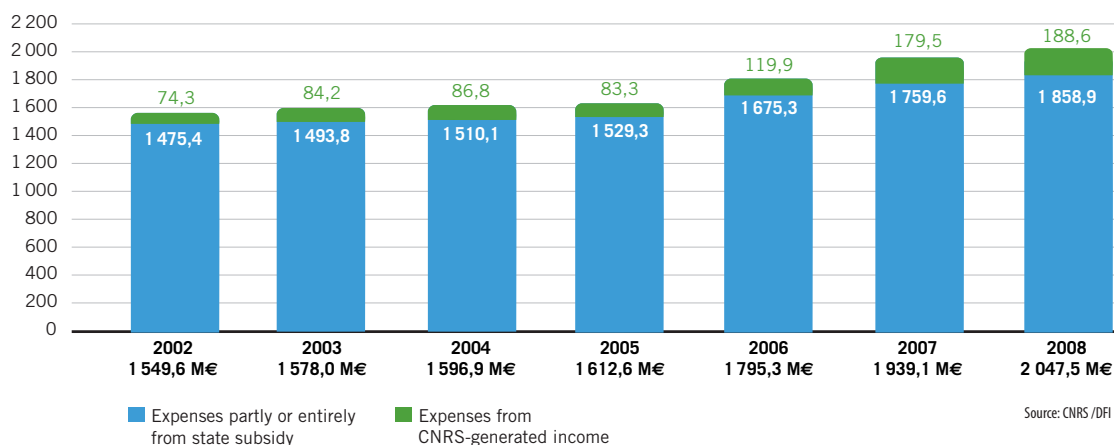
Expenditures by type

Expenditures by type in 2008



Total personnel expenditures represented €2,047.5 million or 71% of total expenditures.

Change in personnel expenditures 2002-2008

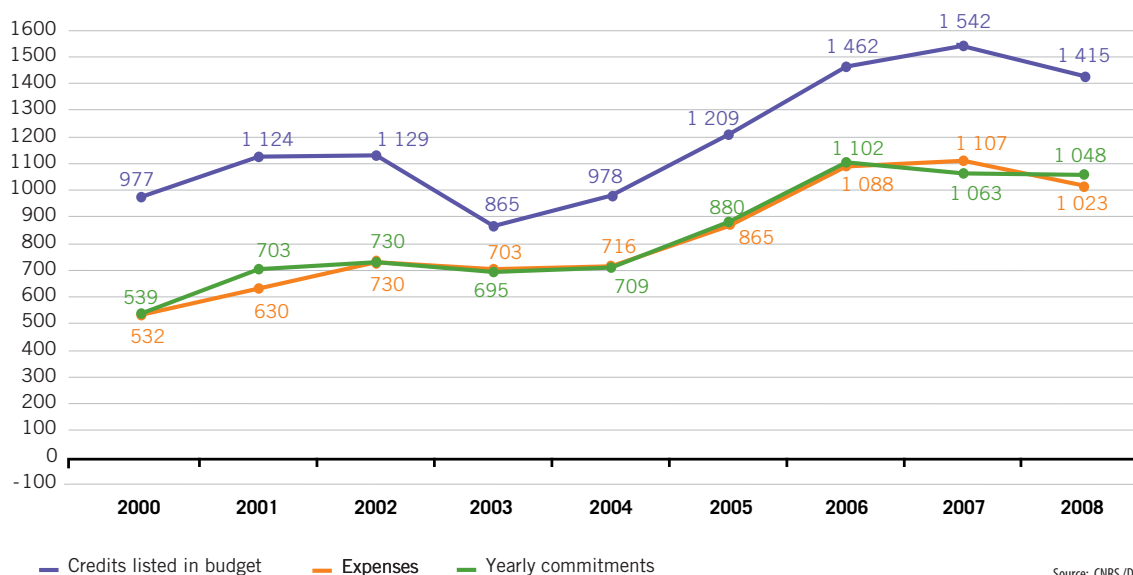


As in 2007, personnel expenditures financed by the Ministry of Research subsidy included a major increase in payroll taxes, due mainly to the increase in the civil pension rate.

Personnel expenditures financed by CNRS-generated resources represent a notable and increasing share of expenditures financed by CNRS-generated resources (35% in 2008). They concern a workforce of 4,600 full time equivalents.

The figure below shows the change in existing appropriations allocated and spent between 2000 and 2008, excluding permanent personnel expenditures.

Change in resources, commitments, and expenditures, in € million ex-VAT



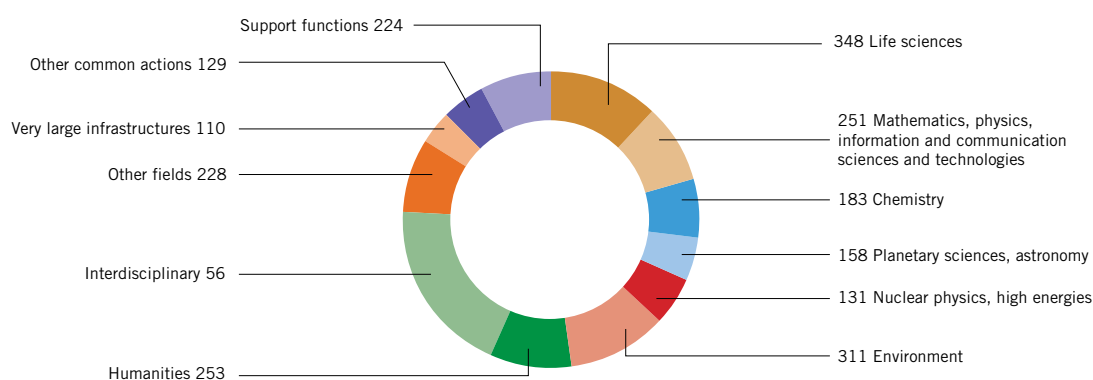
Expenses by recipient

The 2008 budget execution for cost center 1 (covering the resources of research unit) demonstrates the CNRS priority for financing laboratories: they directly receive almost 84% of the organization's financial resources (versus 82% in 2007).

Cost center 2 includes resources allocated to joint actions. Very large research infrastructures (TGIR) represent just about 46% of the amounts in this cost center.

Cost center 3 includes resources allocated to support functions. It represents only 8% of total CNRS expenditures.

2008 expenditures by recipient, in € million



CNRS ANNUAL FINANCIAL STATEMENTS

Budget outcome for 2008

A surplus of **€106 million**, compared to €184 million in 2007 (-€78 million).

- Operating results: -€3 million (€55 million in 2007)
The drop is due to an increase in operating expenses (€85 million), notably for personnel expenditures, without an equivalent increase in revenue (€27 million).
- Financial result: €6 million (€6 million in 2007)
This positive result, unchanged from 2007, is mainly due to returns on investments.
- Extraordinary profit: €103 million (€124 million in 2007)
The €21 million drop is mainly due to a reduction in reversals on investment subsidies, caused by the change in accounting methods for the subsidy for public service expenditures.

COSTS	M€
Personnel	2 073
Usage of appropriations	413
Other costs	137
Amortization expense and provisions	223
Operating expenses	2 846
Financial expenses	1
Extraordinary costs	6
TOTAL COSTS	2 853
Benefit	106

REVENUE	M€
Subsidies	2 432
Business income	343
Other revenue	53
Reversal of provisions and depreciation allowances	15
Operating revenue	2 843
Financial revenue	7
Extraordinary revenue	109
TOTAL REVENUE	2 853

Source: CNRS/ACP

- The subsidy for public service expenditures (€2,331 million) represents 78% of CNRS revenue.
- ANR and the European Union represent 38% and 15% of total income, respectively.
- Revenue recognized pursuant to contracts financed by ANR increased by 38% (€130 million).
- Among other revenue, €43 million came from patent technology transfers.
- Concerning personnel expenditures, compensation for non-permanent personnel increased by €29 million to reach €198 million and payroll taxes increased by €101 million to reach €685 million (mainly due to pension payments).

2008 balance sheet

ASSETS	2008	%
Net non-current assets	1 233	56%
Net current assets	428	20%
Cash and cash equivalents (assets)	530	24%
Total	2 191	

LIABILITIES	2008	%
Total long-term resources	1 529	70%
Provisions, long-term debt	76	3%
Current liabilities	580	26%
Cash and cash equivalents (liabilities)	6	ns
Total	2 191	

Source: CNRS/ACP

- Fixed assets included 91% tangible assets, 7% intangible assets, and 2% financial fixed assets.
- Cash and cash equivalents represented 24% of assets (€524 million), notably due to an ANR payment of €196 in late December.
- Given the level of working capital (€372 million) and cash and cash equivalents on December 31, working capital requirements were -€152 million.

Governance

CNRS MANAGEMENT

Catherine BRÉCHIGNAC,
President

Arnold MIGUS,
Director General

Alain RESPLANDY-BERNARD,
Secretary General

ETHICS COMMITTEE

President

Jean-Pierre BOURGUIGNON,
Mathematician

Members

Bernadette Bensaude-Vincent,
Historian and philosopher
Jean-Michel Besnier, *Philosopher*
Alain Boudet, *Biologist*
Michel Campillo, *Geophysicist*
Hubert Doubre, *Nuclear physicist*
Marie Farge, *Expert in fluid mechanics*
Anita Guerreau, *Medieval historian*
Marc Jeannerod, *Researcher
in neurosciences*
Joseph Mariani, *Researcher
in information and communication
sciences*
Andrée Marquet, *Chemist*
Christine Noiville, *Legal scholar*
Evelyne Serverin, *Legal scholar
and sociologist*

BOARD OF DIRECTORS

Catherine BRÉCHIGNAC, *President of CNRS*

De jure members

• GOVERNMENT REPRESENTATIVES:

Gilles BLOCH, *Director General for Research and Innovation*

Patrick HETZEL, *Director General for Higher Education
and Job Placement*

Rodolphe GINTZ, *Assistant Director, 3rd Budget Office*

• REPRESENTING THE CONFERENCE OF UNIVERSITY PRESIDENTS

Axel KAHN, *President of Université René Descartes*

Appointed members

• SCIENTIFIC LEADERS

Jules HOFFMANN, *President of the Académie des sciences*

Jean-Pierre MACHELON, *Dean of the Law Faculty,
Université Paris Descartes*

Michel MAFFESOLI, *Professor at the Sorbonne*

Michel VOOS, *Laboratoire Pierre Aigrain*

• LEADERS IN INDUSTRY

Emmanuel CANET, *President of Research and Development,
Servier Research Group*

Simone CASSETTE, *Laboratory Director, Thales Research & Technology*

Jacques FOSSEY, *CNRS Senior Researcher*

Robert MAHLER, *President, Alstom France*

• LEADERS IN THE ECONOMIC SECTOR

François GUINOT, *Honorary President, Académie des technologies*

Jean-Claude LEHMANN, *Member, Académie des technologies*

Dominique VERNAY, *Director of Research and Technology,
Thales Group*

Pascal VIGINIER, *Executive Vice President of Sales and Service,
Orange France*

Elected members

Charles-Antoine ARNAUD (*SGEN/CFDT*)

Pierre GIRARD (*SGEN/CFDT*)

Patrick MONFORT (*SNCS/FSU*)

Daniel STEINMETZ (*SNTRS/CGT*)

SCIENTIFIC COUNCIL

President

Gilles BOËTSCH, *Director of the International Joint Unit: Environnement, Santé, Société*

Elected members

Pierre Alart, *Director, Laboratoire de Mécanique et Génie Civil (Montpellier)*

Jean-Pierre Barbe, *Assistant Physicist, Nuclear Physics Institute (Orsay)*

Pierre Chavel, *Director, Laboratoire Charles Fabry de l'Institut d'Optique (Palaiseau)*

Jean-Marc Douillard, *Researcher, Institut Charles Gerhardt (Montpellier)*

Danielle Doweck, *Senior Researcher, Laboratoire des Collisions Atomiques et Moléculaires (Orsay)*

Pascale Gillon, *Researcher, Institut de Combustion, Aérodynamique, Réactivité et Environnement (Orleans)*

Nelly Krowolski, *Research Engineer, Centre Asie du Sud-Est (Paris)*

Michel Piecuch, *Professor, Université Henri Poincaré (Nancy)*

Eric Remila, *Associate Professor, Université de Saint Etienne, Laboratoire de l'Informatique du Parallélisme*

Marc Vianey-Liaud, *Professor, Université Montpellier II, "Institut des Sciences de l'Evolution"*

Appointed members

Bertrand Castro, *Scientific Director - Industrial Affairs, Sanofi-Aventis*

Bruno Dubost, *Scientific Director, Rio Tinto Alcan Engineered Products, Technology & Innovation*

Bernard Dupré, *Director, Observatoire Midi Pyrénées (Toulouse)*

Thérèse Encrenaz, *Vice-President of the Scientific Council – Paris Observatory*

Albert Fert, *Scientific Director, Unité Mixte de Physique - CNRS/THALES*

Jean-Pierre Goedgbuer, *Scientific Director, Groupe PSA Peugeot-Citroën*

Pierre Ladeveze, *Chairman of the EADS Foundation, "Advanced Computational Structural Mechanics", Ecole Normale Supérieure de Cachan*

Jean-Antoine Lepasant, *CNRS Senior Researcher*

Daniel Mansuy, *Senior Researcher*

Eva Pebay-Peyroula, *Director, Institut de Biologie Structurale (Grenoble)*

Dominique Wolton, *Director, CNRS Institut des Sciences de la communication*

Leading scientists from outside France

Franco Brezzi, *Director, Istituto di Matematica Applicata e Tecnologie Informatiche of the Italian National Research Council (CNR)*

Fabiola Gianotti, *Research Physicist, CERN*

Jennifer Green, *Professor of Chemistry, Oxford University*

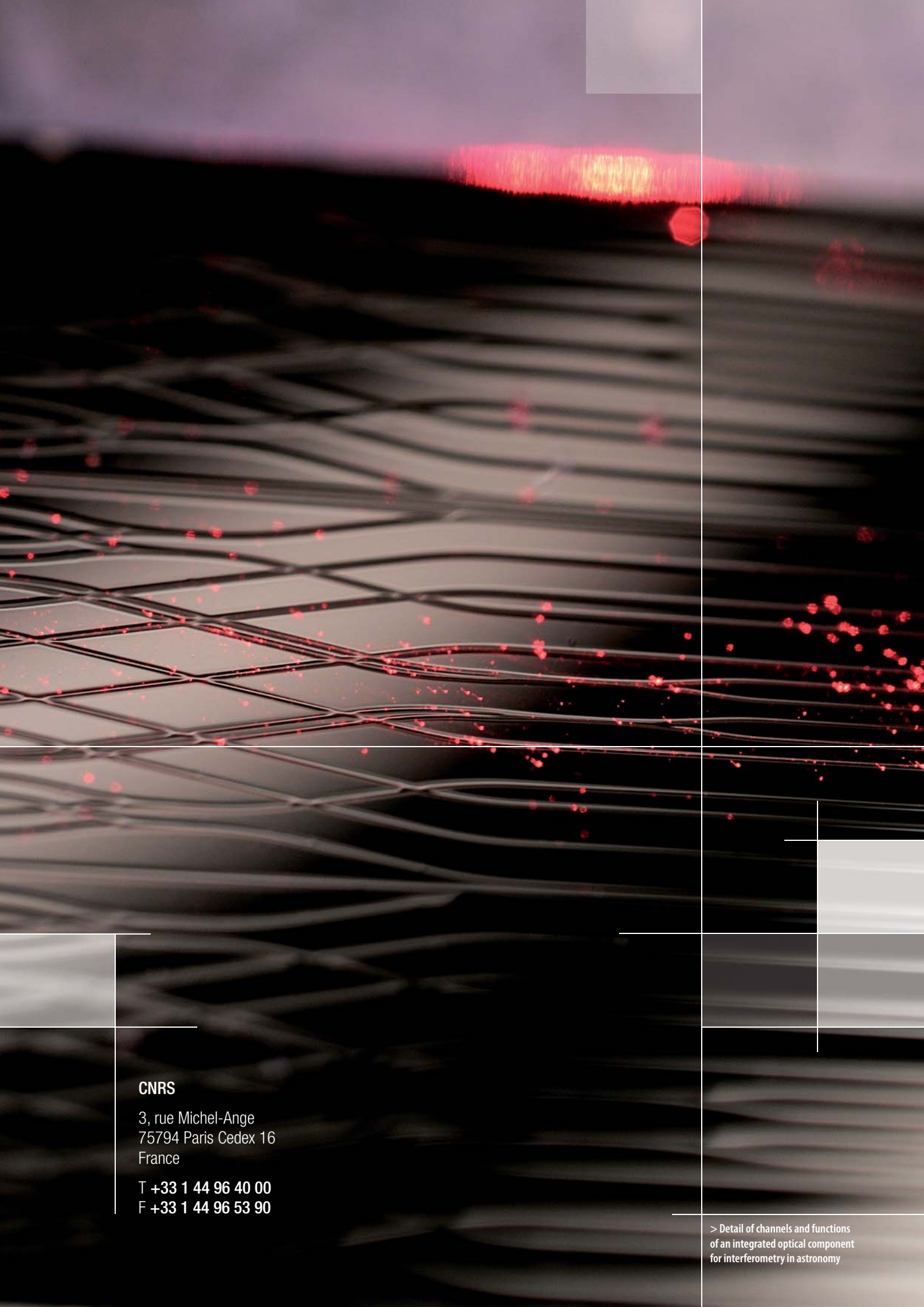
Marc Lucotte, *Professor, Institut des Sciences de l'Environnement, Université du Québec, Montreal*

Gretty Mirdal, *Professor of Clinical and Transcultural Psychology, University of Copenhagen*

Muriel Moser, *Senior Researcher, Fonds National de la Recherche Scientifique, Université Libre de Bruxelles*

Martine Rahier, *President, Université de Neuchâtel*

Gareth Stedman Jones, *Director, Centre for History and Economics, King's College, University of Cambridge*



CNRS

3, rue Michel-Ange
75794 Paris Cedex 16
France

T **+33 1 44 96 40 00**

F **+33 1 44 96 53 90**

> Detail of channels and functions
of an integrated optical component
for interferometry in astronomy