# Annual Report 2007

Strengthening international science
for the benefit of society

ICSU
International Council for Science

# ICSU's vision

The long-term ICSU strategic vision is for a world where science is used for the benefit of all, excellence in science is valued and scientific knowledge is effectively linked to policy making. In such a world, universal and equitable access to high quality scientific data and information is a reality and all countries have the scientific capacity to use these and to contribute to generating the new knowledge that is necessary to establish their own development pathways in a sustainable manner. ICSU has a major role to play in leading the global science community, implementing new scientific initiatives and engaging with policy-makers and other sectors of society to help realize this vision.

*ICSU Strategic Plan 2006—2011*

# Mission statement

ICSU's mission is to strengthen international science for the benefit of society. To do this, ICSU mobilizes the knowledge and resources of the international science community to:

- Identify and address major issues of importance to science and society
- Facilitate interaction amongst scientists across all disciplines and from all countries
- Promote the participation of all scientists—regardless of race, citizenship, language, political stance, or gender—in the international scientific endeavour
- Provide independent, authoritative advice to stimulate constructive dialogue between the scientific community and governments, civil society, and the private sector.

# Young scientists take on global scientific challenges

**On 4 - 6 April, 142 young scientists from 71 countries congregated in Lindau, Germany, to reflect on the future conduct of science in a rapidly changing world.**

'Global Scientific Challenges: Perspectives from Young Scientists' was designed to attract and stimulate the interests of the young generation who will play a leading role in international science over the coming decades.

The conference attendees were nominated, and in many cases sponsored by, ICSU's National Members, Scientific Unions and Interdisciplinary Bodies, and so, represented some of the best young scientists from around the world and across many scientific disciplines. This event was not only *for* young scientists, it was also *by* young scientists with a Planning Group—all under 35 years of age—that was determined to make this event different from other scientific conferences.

While the aim was to bring together young scientists from as many countries as possible, a central question was: how do you find useful ground for discussion among 150 people who apparently share little in common other than being a 'young scientist'? Inspired by the *ICSU Strategic Plan 2006–2011*, a broad set of themes of universal relevance were selected: international cooperation; trans-disciplinary collaboration; public engagement; science for policy; working with the private sector; and scientific freedom and responsibilities.

The conference format and focus on case study assessments and sharing experiences created an opportunity for everyone to get involved in the discussions and debate. Following each day's formal sessions, many impromptu and intensive debates took place in more informal locations, such as the restaurants and bars of Lindau. This beautiful historic city proved to be the ideal environment for participants to form groups and continue the discussions which had begun earlier in the day. These informal, after hours sessions provided a wonderful opportunity for networking.

Several members of the Executive Board also attended and actively participated in both the formal and informal discussions. This unique event will surely have an impact on the long-term strategic directions of ICSU and on the scientific careers of the young people involved.

The conference would not have been possible without ICSU Members, who generously supported and sponsored the participants. ICSU also acknowledges and expresses thanks to the following organizations for their financial support: the US National Science Foundation; Robert Bosch Stiftung; Deutschen Forschungsgemeinschaft (DFG), Germany; the town of Lindau; L'Oréal for Women in Science; and the Veolia Institute.

# Message from the Executive Director

On 30 December 2007, my friend, collaborator and mentor, Emeritus Professor Bert Bolin passed away. Bert Bolin was instrumental in setting the stage for ICSU's involvement in climate research. He was the first Chair of the Intergovernmental Panel on Climate Change (IPCC) and set the standard for conducting assessments of scientific knowledge in a policy context. The story of ICSU and climate science is covered in this report—honouring Bert Bolin and celebrating the international science community that made it possible for the IPCC to receive the 2007 Nobel Peace Prize.

In 2007, the World Climate Research Programme (WCRP), the International Geosphere-Biosphere Programme (IGBP) and the Global Climate Observing System (GCOS) organized, together with the IPCC, a conference to take stock of the need for science and global observations to enable the next IPCC assessment. This is an excellent example of the links between scientific research, global observing systems and assessments as a necessary basis for sound policy making. ICSU is proud to sponsor the research and observation components of this continuum, and to have played an important role in the preparations for establishing the IPCC.

There is much discussion about seamless prediction and how to link weather and climate models. This reminds me of the play *Arcadia* by Tom Stoppard. One of the characters, Valentine, is a young scientist who says: 'The ordinary-sized stuff which is our lives, the things people write poetry about—clouds, daffodils, waterfalls—and what happens in a cup of coffee when the cream goes in... these things are full of mystery, as mysterious to us as the heavens were to the Greeks. We are better at predicting events at the edge of the galaxy or inside the nucleus of an atom than whether it'll rain on auntie's garden party three Sundays from now.'

We will not be able to make such a prediction, but our quest to bridge time scales of prediction is truly challenging. In a similar way, the spatial resolution of climate models poses a challenge. We need to be able to develop predictive capacity to address the needs of the small-scale farmer in Africa and, perhaps, the garden party problem of Valentine's aunt.

In 2007, we not only focused our attention on the climate but also on follow-up of the Millennium Ecosystem Assessment. ICSU collaborates with UNESCO and the United Nations University to develop a science agenda linking ecological and social systems. The challenge is not only to bring the relevant natural and social science disciplines together but also to address the question of scale. How can we understand the potential impact of climate change on ecosystem services in a local context? To do this the global change research community needs to be in closer contact with the science community that addresses the resilience of ecological and social systems. Thus, the research will also become relevant for a development context—another challenge for ICSU's research programmes.
As planning begins for the next climate assessment, and a new assessment of ecosystem services and human well-being, it is necessary to ensure that the two efforts are closely linked and provide the necessary integrated approach of Earth system science—another important area that ICSU was heavily involved in 2007 (predominantly through the review of the Earth System Science Partnership, ESSP, which is near completion).

ICSU plays a central role in pushing the science agenda to ensure the development of global observing systems and to provide the best scientists for international assessments of scientific understanding in a policy relevant context. 2007 has been an exciting year with much progress in areas of key importance to ICSU's mission of 'strengthening international science for the benefit of society'.

**Thomas Rosswall**
*Executive Director*

# Message from the President

It has been a great privilege to serve as President of ICSU. Looking back as my term comes to an end, it was an exciting and challenging time, particularly as ICSU embarked on the implementation of its first-ever Strategic Plan. I would like to thank the ICSU family and the wider scientific community for their support. I would also like to take this opportunity to welcome Catherine Bréchignac as the incoming President and I encourage all of our Members to support her in leading ICSU through the coming triennium.

**A strategic vision**

2007 marked the second year of implementing the *ICSU Strategic Plan 2006–2011*; the collective strategic vision of the thousands of scientists represented by ICSU's Members. The main thrust of the plan is to utilize ICSU's expertise and unique capabilities to strengthen international science for the benefit of society. Many significant achievements towards this objective have already been made, including re-structuring and re-focusing of existing activities as well as the development of several major new initiatives.

Central to realizing the strategic vision is the activities of the Committee on Scientific Planning and Review (CSPR), which works with the Executive Board to help bring major new scientific initiatives to fruition. In addition to new initiatives, the Committee also plays an important role in reviewing existing programmes. Currently, four programmes are undergoing reviews, which will provide recommendations on the future of the programmes and help guide scientific research. CSPR will continue to play a leading role throughout the implementation of the Strategic Plan.

**Changing world, emerging science**

We live in a world that is changing rapidly—with increasing urbanization, global environmental change and emerging issues of human health. ICSU is addressing many of the scientific issues arising from this changing landscape through the development of major new international research programmes in human health, hazards and disasters, and ecosystem services and human well-being.

**Commitment to developing countries**

The most significant structural change that has taken place within ICSU in recent years is the establishment of the Regional Offices: Africa in 2005, Asia and the Pacific in 2006 and Latin America and the Caribbean in April this year. They support scientific networks in their regions and signal an important increase in the presence and commitment of ICSU to serve developing countries. Through the activities of the Regional Offices the number of National Members has increased, most notably in Africa. In 2008, we look forward to the 29th ICSU General Assembly in Maputo, Mozambique; this is the first time an ICSU General Assembly will be held in sub-Saharan Africa.

The Regional Offices play a key role in strengthening science within the context of regional priorities. As part of this process, they are developing Science Plans based on regional priorities, identified following extensive consultation. Continued involvement by those most familiar with the needs of their own communities will be essential in order to translate the plans into successful actions—a balance between maximum impact and realistic outcomes.

**Working together and developing partnerships**

To become a truly global organization ICSU must engage and involve partners in all countries and regions of the world. ICSU continues to work in close cooperation with other international organizations, including relevant parts of the UN system, and the Regional Offices have continued to expand collaborations with regional partners. This cooperation allows the sharing of knowledge and combining of resources, to create new opportunities and reinforces ICSU's commitment to strengthen international science for the benefit of society.

**Goverdhan Mehta**
*President*

# New building for ICSU Secretariat

**The ICSU Secretariat relocated to more functional premises on 31 August. The French Government generously offered the building to ICSU as a replacement for the Hôtel de Noailles, which had been home to ICSU since 1972.**

With its marble staircase and beautiful garden, the Hôtel provided a grand setting in which to conduct the activities of an international organization.

The new premises, located not far from the Arc de Triomphe and the Champs Elysées, is still in the 16th arrondissement of Paris but more centrally located. The building provides ICSU, plus CODATA and SCOPE, with more spacious meeting rooms and an upgrade of the facilities, including videoconferencing. The new address is 5 rue Auguste Vacquerie, 75116 Paris, while email addresses, phone and fax numbers remain unchanged.

The relocation was not without complications. While the renovation work began in May, it was not completed by the time of the move. Despite this, the Secretariat staff continued to work in the new building, often under difficult conditions, while the renovation was ongoing.

The new premises will be inaugurated in 2008, following the completion of the final touches to the renovations.


# International Polar Year 2007-2008

**March 2007 saw the successful launch of the International Polar Year (IPY) 2007–08 with more than 24 countries hosting events that attracted a huge amount of media attention.**

The Global Opening Ceremony was held at the Palais de la Découverte in Paris and attended by HSH Prince Albert II of Monaco and more than 150 scientists, teachers, artists, and diplomats.

The IPY is an intensive burst of interdisciplinary, scientific research and observations focused on the polar regions. It is one of the most ambitious internationally coordinated research programmes ever attempted and should significantly advance our understanding of the nature and behaviour of the polar regions and their role in the functioning of the planet. The IPY runs from March 2007 to March 2009 to encompass two field seasons at each pole. It was planned by ICSU and is sponsored jointly with the World Meteorological Organization (WMO).

Thousands of scientists from around the world are involved in more than 200 research projects that were endorsed by the ICSU-WMO Joint Committee, which is overseeing the implementation of the IPY. The research projects integrate natural and social sciences, and, in recognition of the public interest in the polar regions, the major projects have also incorporated education, outreach and communication activities.

The IPY research projects have attracted more than US$400 million in new funding for polar research and around US$800 million from existing funding programmes. The projects address the six IPY research themes, which were developed in consultation with the scientific community:

**Status** – to determine the present environmental status of the polar regions

**Change** – to quantify, and understand, past and present natural environmental and social change in the polar regions; and improving projections of future change

**Global linkages** – to advance our understanding of the links and interactions between the polar regions and the rest of the globe

**New frontiers** – to investigate the frontiers of science in the polar regions

**Vantage point** – to use the polar regions as unique vantage points to develop and enhance observatories from the interior of the Earth to the sun and the cosmos beyond, and

**Human dimension** – to investigate the cultural, historical, and social processes that shape the sustainability of circumpolar human societies.

To maintain public interest throughout the two years of the IPY, the International Programme Office in Cambridge, UK, organizes quarterly International Polar Days. The first two focused on sea ice (September 2007) and ice-sheets (December 2007) and stimulated an enormous amount of interest from the public and the media. Each day is a major undertaking with: activity sheets and information available in 11 languages; live video and internet conferences with scientists in the field; and relevant IPY research projects profiled for the media.

As the IPY approaches the halfway point, it has already stimulated international cooperation, engaged new national partners, crossed disciplinary boundaries, raised public awareness, and begun training and exciting a new generation of polar scientists. It is intended that the IPY will leave a legacy of observing sites, facilities and systems to support ongoing polar research and monitoring. Foremost among the challenges in achieving this are increasing the resources for data management and archiving, and better engagement with operational and modelling communities.

**www.ipy.org**

*photo: HSH Prince Albert of Monaco at the launch of the IPY*

# Earth observations

**The Group on Earth Observations (GEO) was established in 2005 to develop the Global Earth Observation System of Systems (GEOSS).**

GEOSS will link together existing and planned observation systems around the world and support the development of new systems where gaps currently exist. The aim of ICSU's involvement and that of several ICSU Interdisciplinary Bodies is to strengthen the role of science in the 'system of systems' and ensure that science benefits from it.

The *GEOSS 10-Year Implementation Plan* has now been in place for two years. Several tasks in the plan are being lead or co-lead by ICSU Interdisciplinary Bodies and already significant progress has been made toward realizing the implementation goal.

ICSU attended the fourth GEO Plenary and Ministerial Summit held in Cape Town, South Africa, in November. The participants at the summit considered the progress report *The First 100 Steps to GEOSS* and adopted the *Cape Town Declaration*. ICSU had a stand throughout the meeting with a message that focused on the links between interdisciplinary research, observations and assessment, and their influence on policy making. The stand was developed in cooperation with: the Committee on Data for Science and Technology (CODATA); DIVERSITAS, an international programme on biodiversity; and the World Climate Research Programme (WCRP).

ICSU, through CODATA, is working to ensure timely and open access to data from global observation systems and GEO Partners have committed to working together to achieving this. Upon invitation from GEO, CODATA drafted the *White Paper and Implementation Guidelines for the GEOSS Data Sharing Principles*. Governments and institutions participating in GEO will need to develop and implement appropriate policies and procedures that enable and support the Data Sharing Principles in fair and effective ways. The implementation process will be presented to the next GEO Ministerial Summit in 2010.

# Environmental hazards

**Planning for a major new international programme on natural and human-induced environmental hazards and disasters continued throughout 2007.**

Planning for a major new international programme on natural and human-induced environmental hazards and disasters continued throughout 2007. The programme will aim to enhance the capacity—worldwide—to address hazards and make informed decisions on how to reduce their impacts. To do this, it will shift the focus from response-recovery to prevention-mitigation strategies, building resilience and reducing risk, and learning from experience—to avoid repeating past mistakes. The benefits to society would be substantial: reduction in loss of life; fewer people adversely impacted; and wiser investments and choices made by civil society.

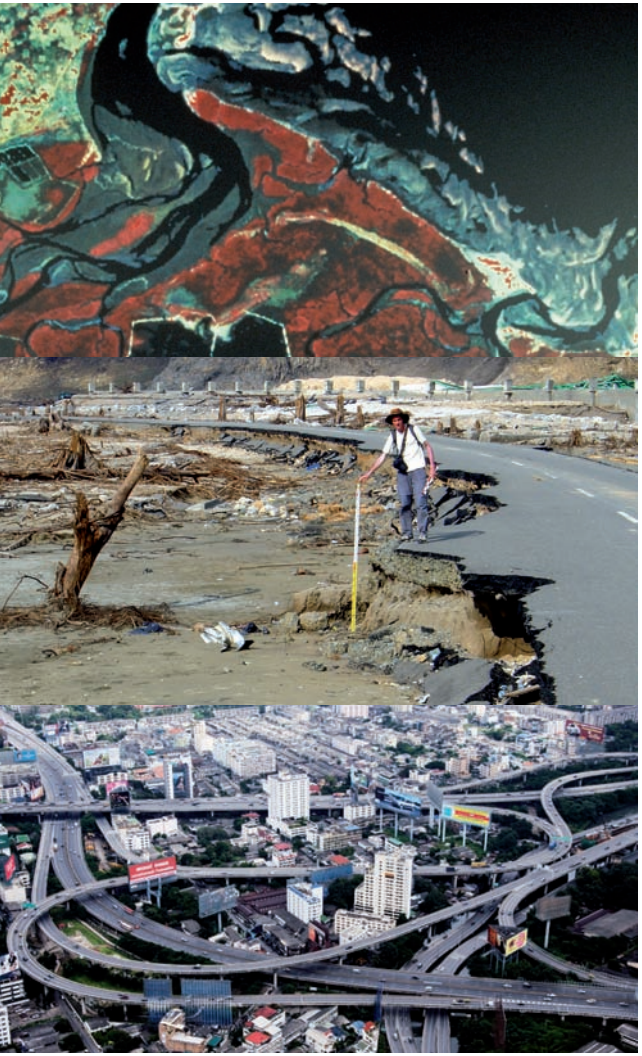
The ICSU Planning Group for the programme is proposing an inter-disciplinary approach integrating natural, health, engineering and social sciences. It will include socio-economic analysis of vulnerability, understanding the role of communications, and the public and political responses required to reduce risk.

The programme, Integrated Research on Disaster Risk (IRDR), is complex and challenging, not least because of the many international initiatives and activities that already exist in the field.

Adding to the complexity is the number of interested stakeholder groups: international and national scientific programmes; international and national organizations involved in development, humanitarian assistance and similar issues; and, more generally, governments, the private sector and civil society. The Planning Group has consulted broadly with relevant international organizations and associations—many within the ICSU family—and will continue to do so throughout the implementation.

Consultation with potential collaborators and co-sponsors remains crucial if the new programme is to be successful in building on, consolidating and complementing research being carried out elsewhere.

# Urban health & well-being



**Human health was identified as a priority in the *ICSU Strategic Plan 2006–2011* following the explicit recognition that it is inextricably linked to the health of the planet and environmental change.**

In 2006, a Scoping Group was established to assess how to make use of ICSU's particular strengths in responding to the global scientific challenges relating to human health and well-being.

Urban areas are expanding rapidly. In the past two centuries the proportion of humans living in cities or large towns has increased from approximately 5% to 50%. This social transition has, not surprisingly, been accompanied by a changing pattern of human health risks and consequent illness and disease. Numerous studies, from both natural and social sciences, have provided considerable insights into what these changes are and why they are occurring. Thus far, however, it could be argued that science has generally failed to take account of the complexity of the urban environments. In so doing it has also failed to consistently provide useful evidence for the policy makers, who have to grapple with urban challenges on a daily basis. A systems analysis approach, specifically designed to take into account the complexity of urban environments and the needs of policy makers, could help to redress this.

In light of the scoping exercise and consultation with ICSU Members, planning began for a new interdisciplinary initiative. A Systems Analysis Approach to Health and Well-being in the Changing Urban Environment will build on the expertise of the Scientific Unions in areas such as food and nutrition, medical geography, toxicology, water management and remote sensing. New perspectives and partners will also need to be incorporated, with medical, social and engineering sciences playing an important role. Initial links have been established with the International Institute for Applied Systems Analysis in Vienna, Austria, whose expertise could be very valuable in developing this complex initiative.

# Biological sciences

**The International Union of Biological Sciences (IUBS)** was established in 1919 and is a founding Member of ICSU. It currently has 44 national members and 80 scientific members, representing the many different disciplines of biological research.

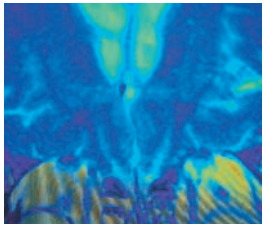
The 29th General Assembly and Scientific Symposium was held in Washington DC, 9 - 13 May, at the invitation of the National Academy of Sciences. The symposium, 'Biological Sciences for the 21st Century: Meeting the Challenges of Sustainable Development in an Era of Global Change', explored some of the most exciting developments in biological sciences research—including bio-complexity, computational biology and informatics, genomics, knowledge integration and institutional capacity—and how they could be harnessed to address worldwide challenges of sustainable development, ecosystem services, food security, population health and energy.

IUBS continues its involvement in biodiversity research with decisions to develop a programme on the human dimension of biodiversity and to extend the co-sponsorship of DIVERSITAS, an international programme of biodiversity science. The Union will also organize a pre-conference symposium and side-event at the ninth meeting of the Conference of the Parties (COP9) of the Convention on Biological Diversity in Bonn, Germany, in May 2008.

The IUBS General Assembly elected a new President, John Buckeridge from RMIT University in Australia, and a new Executive Committee. The 30th General Assembly will be held in Cape Town, South Africa, in November 2009.

**www.iubs.org**

# Brain research



**The International Brain Research Organization (IBRO)** was founded in 1960 and became a Member of ICSU in 1993. It brings together more than 80 neuroscience organizations and represents the interests of more than 50,000 neuroscientists around the world.

The seventh IBRO World Congress of Neuroscience was held in Melbourne, Australia in July. The Australian Neuroscience Society and the IBRO Local Organizing Committee together created a congress that was attended by 2500 participants from 63 countries with a scientific programme that included 60 symposia, 20 satellite meetings and eight plenary lectures. Peter Agre, joint winner of the 2003 Nobel Prize for Chemistry, gave the opening plenary lecture on aquaporins, which play a vital role in water transport and swelling of the brain following trauma and lack of oxygen.

IBRO continued to expand its educational programme in 2007, particularly in developing countries, with 23 neuroscience schools and courses held worldwide - three in Africa, eight in Asia and the Pacific, three in Latin America, eight in Europe and one in North America. As a result of this expansion, IBRO now has over 3000 alumni who keep in contact with the schools, and each other, through a dedicated website (alumni.ibro.info).

The Italian Society of Neuroscience (Societa Italiana di Neuroscienze) will host the eighth IBRO World Congress in Florence, Italy, in July 2011.

**www.ibro.org**

The 29 international Scientific Union Members provide the disciplinary backbone of ICSU. They play a central role in bringing together scientists from all parts of the world to consider the issues of particular interest to individual disciplines. This section contains brief reports from Unions that held their General Assemblies in 2007.

# Chemistry

**The International Union of Pure and Applied Chemistry (IUPAC)** was formed in 1919 by chemists from industry and academia, and has been a Member of ICSU from the outset. It currently represents chemists in 69 countries, through 49 adhering national organizations and 20 associates.

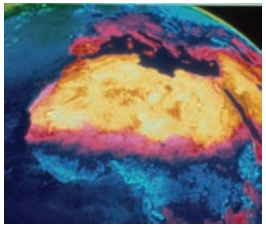
'Chemistry Protecting Health, Natural Environment and Cultural Heritage' was the theme for the 41st IUPAC Congress, held in conjunction with the 44th General Assembly in Torino, Italy, in August. More than 440 participants, including 17 young chemists from Canada, Poland, Romania, Mauritius, Russia, the UK and US, took part in a busy schedule of events over 10 days. Major events included the World Chemistry Leadership Meeting, which focused on the health and environmental safety of chemical products, and a viewing of the Roald Hoffmann play *Should've*, which explores ethics and social responsibility in science.

The IUPAC Council meeting was attended by 111 delegates from 43 of the 49 national adhering organizations. Council endorsed the plan to obtain United Nations approval of 2011 as an International Year of Chemistry and three new national adhering organizations were admitted—Cuba, Ethiopia and Uruguay.

The 2009 Congress and General Assembly will be held in Glasgow, Scotland. This will be followed by Puerto Rico in 2011.

**www.iupac.org**

# Geodesy and geophysics



**The International Union of Geodesy and Geophysics (IUGG)** is dedicated to advancing, promoting, and communicating knowledge of the Earth system and its space environment. Established in 1919, IUGG is a founding member of ICSU and represents geophysics and geodesy in 65 countries, bringing together eight international associations across all disciplines of Earth science. IUGG is promoting activities of the electronic Geophysical Year (eGY), International Heliophysical Year (IHY), International Year of Planet Earth (IYPE), and International Polar Year (IPY).

More than 4300 participants from 92 countries, including 1300 students, attended the 24th General Assembly in Perugia, Italy in July. The theme for the scientific programme, 'Earth: Our Changing Planet', covered the range of geophysics and geodesy research and included lectures delivered by distinguished scientists, 220 scientific sessions and 99 meetings.

The General Assembly adopted several important resolutions, among them, the need for studies of aerosol pollution effects on precipitation, the urgency of addressing climate change, and the reduction of risk from natural hazards.

IUGG celebrated the 50th anniversary of the International Geophysical Year and launched the eGY with a public lecture, exhibits and demonstrations. A new International Association of Cryospheric Sciences was formed and accepted into the IUGG family. The association was inaugurated during the closing ceremony with the cutting of a snowflake ice sculpture.

The 25th IUGG General Assembly will be held in Melbourne, Australia in July 2011.

**www.iugg.org**

# Quaternary research

**The International Union for Quaternary Research (INQUA)** was founded in 1928 to promote understanding of the Quaternary Period—the past 2.6 million years. It represents more than 5000 scientists in 50 countries and became a Member of ICSU in 2005.

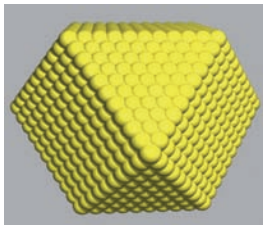
'The Tropics: Heat Engine of the Quaternary' was the theme for the 17th INQUA Congress, held in Cairns, Australia, with more than 1200 delegates attending. Plenary sessions included: coral ecosystems; climate and climate impact and the influence of the oceans; pre-modern hominids; the Antarctic in the Quaternary; and climate modelling. Evident throughout the meeting were INQUA's scientific commissions—coastal and marine processes, palaeoclimate, palaeoecology and human evolution, stratigraphy and geochronology, and terrestrial processes.

Sessions on coastal and marine processes were very popular, with more than 200 people attending; demonstrating the deep concern for coastal changes and sea-level history and the importance of research in this area. The session 'Late Quaternary Coastal Changes: Sea level, Sediment Forcing and Anthropogenic Impact' with 34 presentations and 26 posters illustrated the wide range of traditional and innovative approaches, from various disciplines and regions, for investigating the driving processes and mechanisms.

The Congress also saw the Eastern African Quaternary Association (EAQUA) admitted to Associate Membership.

**www.inqua.tcd.ie**

# Materials research



**The International Union of Materials Research Societies (IUMRS)** links interdisciplinary researchers in the science and technology of materials. IUMRS was founded in 1991, and became a Member of ICSU in 2005.

Materials research addresses basic science and applications, ranging from the nano-scale (e.g. electronic materials and devices, and biological, biomimetic and bio-compatible materials) to the macro-scale (e.g. special ceramics, high performance metals and cements, immobilization of nuclear wastes, energy resources, photonic materials and superconductivity).

IUMRS sponsors the International Conferences on Advanced Materials (ICAM), and on Electronic Materials (ICEM), each with up to 5000 participants. IUMRS also co-sponsors the International [Materials] Conference in Asia (ICA), and the International Conference on Materials for Advanced Technology (ICMAT).

ICAM 2007 was held in Bangalore, India, where topics included: intelligent materials, self assembly and nanomaterials; magnetics and spintronics; biomedical applications; polymers; energy materials; catalysis; computational materials science; and high performance structural materials.

In July 2007, ICMAT in Singapore included 16 topical symposia, and featured public lectures by Nobel Laureates K. Barry Sharpless, 'Chemistry and the Kiss Principle', and Claude Cohen-Tannoudji, 'Atoms and Photons'. 'Designer Surfaces for the Biological Interface: How Far Can We Enhance Functional Performance?', a theme lecture by P. Vadgama, also stirred lively interest.

In October, 50 participants from 18 countries attended an invitational workshop in Lisbon, 'Materials Research that is Key to Meeting Energy Needs and Addressing Climate Change'. A major goal was to stimulate cooperation in materials research towards slowing the rate of global $CO_2$ emissions. Roadmaps developed for new materials and energy technologies will bring together leading academic and industrial scientists, provide information to assist formation of public policies and investment strategies in the energy sector and enhance public understanding of energy issues.

ICEM 2008 will take place in Sydney in July, and the next ICAM will be held in Rio de Janeiro in 2009.

**www.iumrs.org**

# Toxicology

**The International Union of Toxicology (IUTOX),** founded in 1980, has 51 affiliated societies representing over 20,000 toxicologists and has been a Member of ICSU since 1996. IUTOX offers a diverse and challenging perspective on issues and developments relating to toxicology.

IUTOX held its General Assembly during the 11th International Congress of Toxicology (ICTXI) in Montreal, Canada, in July. The Congress, 'Toxicology: Discovery Serving Society', marked the 30th anniversary since the first meeting and attracted over 1500 participants from more than 70 countries, making it one of the largest and internationally diverse ICT meetings ever. During the five days of ICTXI, more than 150 invited speakers from 25 countries participated in the scientific programme, reflecting the extent to which advances in the science of toxicology are being made. Nearly 1000 posters were presented, while 56 companies and organizations participated in an informative and lively commercial exhibition. Several distinguished scientists delivered keynote speeches that attracted attention from local radio and newspapers as well as from international science journalists. Prior to the Congress, more than 300 delegates participated in continuing education sessions, which provided courses in the latest research developments and techniques.

The Spanish Association of Toxicology will host ICTXII in Barcelona, Spain, in July 2010 and the Korean Society of Toxicology will host ICTXIII in Seoul, Korea, in 2013.

**www.iutox.org**

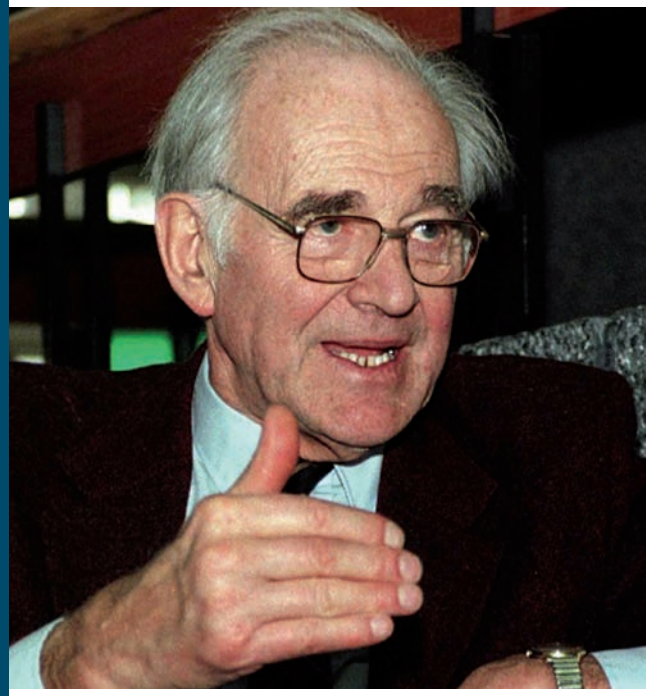
## Unions Meeting

**Representatives from 23 of ICSU's 29 Scientific Unions met with the members of the Executive Board in April. The two-day meeting, 'ICSU and its Unions Working Together to Deliver the ICSU Strategy', was hosted by the Consiglio Nazionale delle Ricerche in Rome.**

The meeting was an important forum for presentations and debate on initial progress in implementing the *ICSU Strategic Plan 2006–2011*. It also provided an opportunity for the Unions to discuss some of their own initiatives and explore opportunities for linking with the ICSU Regional Offices. The regional priorities were outlined by the Directors of the Regional Offices during their presentations.

The open, frank and constructive discussions identified a number of areas where strengthening of the interactions between ICSU and its Unions could be beneficial. This included the nomination and selection of members for various committees and two-way communication with Members. It was also apparent that many Unions would benefit from better knowledge of, and closer links with, ICSU's Interdisciplinary Bodies and vice versa.

# Climate science: ICSU and the IPCC



*Bert Bolin talking climate science*

**Every year, ICSU eagerly awaits the decisions on the Nobel Prizes in Chemistry, Physics, and Medicine or Physiology: have any ICSU colleagues been honoured?**

This year, when the Nobel Peace Prize was awarded to the Intergovernmental Panel on Climate Change (IPCC), together with the US former Vice-President Al Gore, thousands of scientists were honoured - many of whom are involved in ICSU. Unfortunately, Bert Bolin, the founding Chair of the IPCC, could not attend the prize ceremony in Oslo due to illness. However, after the ceremony the IPCC Chair Rajendra Pachauri and Al Gore, visited him in Stockholm and honoured him for the crucial role he played. Bert Bolin passed away before the end of the year.

Three things stand out from ICSU's involvement in atmospheric and climate sciences since the International Geophysical Year in 1957 (see box, page 13):

1. the essential role that international scientific collaboration has played
2. the fruitful collaboration between ICSU and various UN bodies to advance the agenda, and
3. the crucial role of individuals, most notably Bert Bolin.

We have come a long way in the past 50 years. We have moved from a view of the climate system as a geophysical construct, to one where we realize that the climate system can only be understood by building on the best physical, chemical and biological expertise, and by involving the relevant social sciences to reveal the human dimensions of the climate system.

In 2007, ICSU initiated reviews of the International-Geosphere Programme (IGBP) and the World Climate Research Programme. These two ICSU Interdisciplinary Bodies organized, together with the ICSU sponsored Global Climate Observing System (GCOS), the first ever joint meeting with the IPCC to lay the scientific and observational basis for the fifth IPCC Assessment. 2007 was certainly an exceptional year for climate science and thus also for ICSU.

The story of ICSU and climate sciences demonstrates the importance of science leading the way for important policy making. It also shows the importance of an individual with vision and determination and the collective will of the international science community to engage in the ICSU mission to: 'strengthen international science for the benefit of society'.

## ICSU, climate science and the IPCC

| | |
|---|---|
| 1957–58 | International Geophysical Year |
| 1961 | President John F. Kennedy proposes 'cooperative efforts between all the nations in weather prediction' at the UN General Assembly |
| 1962 | UN General Assembly Resolution invites ICSU to develop plans for atmospheric research to complement WMO activities |
| 1964 | ICSU Committee on Atmospheric Sciences (Bert Bolin is first Chair) |
| 1967 | ICSU and WMO decide to plan the Global Atmospheric Research Programme (GARP) and a Joint Organizing Committee is appointed (Bert Bolin is first Chair) |
| 1972 | Recommendation from the UN Conference on the Human Environment that WMO, in cooperation with ICSU, should 'continue to carry out the GARP and if necessary establish a new programme to better understand the ... atmosphere ... and climate change' |
| 1975 | First Scientific Committee on Problems of the Environment (SCOPE) workshop to synthesize knowledge on global biogeochemical cycles (Bert Bolin is one of the leaders) |
| 1978–80 | First Global GARP Experiment |
| 1979 | ICSU co-sponsors the WMO-UNEP First World Climate Conference |
| 1980 | ICSU and WMO (later joined by the IOC) establish the World Climate Research Programme (WCRP) |
| 1984 | ICSU conference on Global Change in Ottawa, Canada |
| 1985 | UNEP-WMO-ICSU Conference on Greenhouse Gases in Villach recommends the establishment of an advisory group on greenhouse gases (Bert Bolin is editor of the resulting SCOPE volume) |
| 1986 | First meeting of the ICSU-WMO-UNEP Advisory Group on Greenhouse Gases (Bert Bolin is a member) |
| | ICSU establishes the International Geosphere-Biosphere Programme: A Study of Global Change (Bert Bolin is a member of the first Special Committee) |
| 1988 | WMO and UNEP establish the IPCC (Bert Bolin is first Chair) |
| 1989 | UN General Assembly Resolution recommends governments to increase their support for IGBP |
| 1990 | IPCC First Assessment Report |
| | Second World Climate Conference, co-sponsored by ICSU, calls for a framework agreement on climate change |
| 1992 | The UN Conference on Environment and Development approves the UN Framework Convention on Climate Change (UNFCCC) |
| | WMO, IOC, UNEP and ICSU establish the Global Climate Observing System (GCOS) |
| 1995 | Second IPCC Assessment Report |
| 2001 | Third IPCC Assessment Report |
| | WCRP, IGBP, IHDP and DIVERSITAS establish the Earth System Science Partnership (ESSP) |
| 2006 | ICSU initiates a review of ESSP |
| 2007 | First WCRP-IGBP-GCOS-IPCC joint conference in Sydney, Australia |
| | ICSU, WMO and IOC initiate a review of WCRP and IGBP |
| | IPCC Fourth Assessment Report |
| | Nobel Peace Prize to IPCC |

# Biodiversity & ecosystem services

**The Millennium Ecosystem Assessment (MA), a landmark in analyzing the scientific basis for ecosystem services for human well-being, was published in 2005.**

One of the follow-up activities to the MA, which had been co-sponsored by ICSU, was the establishment of an *ad hoc* group to define the gaps in scientific understanding that hampered the development of the MA. UNESCO and the United Nations University became co-sponsors of this group, which completed its work in December 2007.

A recommendation is being made to the sponsors to launch a major 10-year research programme on linked ecological and social systems using the conceptual framework of the MA. The focus would be on a number of selected sites where a coordinated research programme would be conducted. In parallel, further sub-global assessments will be encouraged—the ICSU Regional Office for Asia and the Pacific is working with the United Nations University Institute for Advanced Study to develop this concept in the region. The ICSU Regional Office for Latin America and the Caribbean will also contribute through its focus on biodiversity—one of its priority areas.

The United Nations Environment Programme (UNEP) and Development Programme (UNDP), ICSU and others have continued to promote the mainstreaming of the MA findings and discussed the need for a second assessment on ecosystem services for human well-being. In parallel, and initiated by the French government as a follow-up to the biodiversity summit hosted by President Chirac in 2005, there has been a Consultative Process Towards an International Mechanism of Scientific Expertise on Biodiversity (IMoSEB), which had its final meeting in November. It has been agreed that the two processes must come together and UNEP has been invited to coordinate this effort.

Since ICSU has played a central role in the follow-up discussions on the MA and DIVERSITAS has been key in the IMoSEB process, the ICSU scientific community is fully involved in these exciting developments linking biodiversity, ecosystem services and human well-being - efforts that will directly contribute towards the UN Millennium Development Goals.

# Sustainable development

**Energy, climate change, air pollution/atmosphere and industrial development were the focus of the 15th session of the UN Commission on Sustainable Development (CSD-15) in May.**

Policies aimed at meeting sustainable development goals in these focus areas were debated following the review—at CSD-14 in 2006—of progress made in these areas.

ICSU and the World Federation of Engineering Organizations (WFEO) are co-organizers of the Scientific and Technological Community, one of nine non-governmental Major Groups that contribute to the work of the CSD.

The official input from the S&T community, submitted by ICSU and WFEO, highlighted key challenges and actions, including the need for:

- research and development to bring affordable, sustainable energy technologies to the market
- maintaining a strong scientific and technical foundation for assessing air quality, setting standards and developing pollution control strategies
- urgent action to reduce greenhouse gas emissions
- research to increase understanding of the Earth and climate system
- increased support for long-term observations of the Earth and climate system
- developing countries to increase investment in higher education and training, and in building skills and infrastructure (e.g. research institutions, laboratories, equipment), and
- increased North-South and South-South cooperation.

ICSU organized a delegation of scientists to participate in the official meetings at CSD-15 and co-sponsored two well-attended side events. One side event, organized with the US National Academy of Sciences, focused on multi-stakeholder partnerships for sustainability and the other, organized with the UN University, focused on energy and climate change related S&T policy issues for developing countries. ICSU also took part in ministerial round tables and in the ministerial segment of the CSD plenary.

# Freedom and responsibilities

## Challenges to scientific freedom

The year began with a public statement, from the new Committee on Freedom and Responsibility in the Conduct of Science (CFRS), highlighting the plight of six Bulgarian health workers who were sentenced to death for allegedly deliberately infecting children with HIV. Scientific evidence clearly demonstrated that the accused were innocent of any wrongdoing. ICSU added its voice to that of many other scientific and human rights organisations who also protested publicly. This pressure from the international community, combined with diplomatic interventions at the governmental level, eventually led to the release of the health workers in July.

In June, CFRS again raised its voice publicly, in a letter to *Nature* protesting against a call from members of an academic trade union in the UK for a debate on a boycott of Israeli academic institutions. The supporters of the call cited actions of the Israeli authorities impeding the movement of some Palestinian academics and students. The CFRS response was 'that it is surely the duty of scientists to promote international understanding and co-operation—not to penalise each other for the shortcomings of their governments'. The broader issue of the freedom and responsibilities of scientists in situations of political and armed conflict will be high on the CFRS agenda in the future.

In July and August, two eminent Cuban scientists were refused entry visas for separate scientific meetings in the US. Both scientists were due to represent the Latin American scientific community at meetings organized by US members of ICSU's Scientific Unions. A letter of protest from CFRS was published in *Chemical and Engineering News* in October and the committee is working with the US National Academy of Sciences to follow up on this.

## Research integrity

Scientific institutions and the scientific community need to be more aware and vigilant with regards to responsible conduct of research and reporting research results. That was the general consensus of participants attending the first World Conference on Research Integrity in Lisbon, Portugal, in September. More than 200 scientists, science managers and policy makers from over 60 countries participated in the conference, which was organized by the European Science Foundation and the US Office of Research Integrity, in partnership with ICSU.

Competitive pressures, coupled with incentives and reward systems for scientists, are such that maintaining scientific integrity cannot be taken for granted. In this context, one of the critical areas that CFRS will be pursuing in 2008 is the ethics of scientific publishing and communication.

## Emerging Infectious Diseases: Rights and Responsibilities of Scientists

Asia is the epicentre for many emerging diseases, including SARS and avian flu, and yet scientists and policy makers in the region often struggle to get access to the scientific information and biological samples that they need to address these new challenges. Establishing equitable international partnerships in a competitive scientific and political arena is a major challenge. In light of this, the third meeting of CFRS was held in Taipei, Taiwan, and included a workshop on 'Emerging Infectious Diseases: Rights and Responsibilities' and a dialogue session with local academic leaders.

More than 100 scientists, policy makers and medical students attended the meeting, hosted by the Academy of Science located in Taipei in October, to explore the interaction between science, society and policy in the realm of public health and emerging infectious diseases. Cooperation, openness and solidarity from the global scientific community will be crucial in ensuring effective responses to outbreaks of new and re-emerging diseases in the future.

# Data and information

## Access to data and information

Access to scientific data and information is often the rate-limiting step in scientific research, a limit which can be amplified many-fold for scientists in some developing countries. ICSU's overarching policies in relation to data and information are to:

- actively promote the principle of full and open access to scientific data, and
- ensure universal and equitable access to scientific publications.

In order to implement these policies, ICSU has, over time, established a number of Interdisciplinary Bodies dealing with various aspects of data and information. A strategic assessment of these bodies in relation to future scientific needs and directions was published in 2004 and an *ad hoc* Strategic Committee for Information and Data (SCID) has been established to take forward the key recommendations of this review. This Committee, which is charged with overseeing the modernization and re-direction of ICSU's data structures, met for the first time in 2007.

## Data centres and data analysis services

The World Data Centre (WDC) network has more than fifty designated centres worldwide, which collect, manage and openly distribute a wide range of geophysical, solar and environmental data. The network was established during the International Geophysical Year of 1957–58. At the same time, the Federation of Astronomical and Geophysical Data Analysis Services (FAGS) was also created and incorporates 12 services that provide a variety of data products, ranging from mean sea level measurements to space weather forecasts.

In 2007, both of these networks carried out internal consultations to consider their future and provide input to the work of the *ad hoc* committee, SCID. They identified a number of common issues, which need to be addressed in any re-structuring exercise. Principal among these was the lack of any system, including the absence of an effective mechanism for coordinated activities between different centres and services. It was also recognised that the original distinction between data centres and data services was no longer clear-cut and that many World Data Centres also now process and analyse data and provide data products. The possibility of merging, and expanding, the two networks is being considered further by SCID, which will publish its recommendations in 2008.

## Data for science and technology

The Committee on Data for Science and Technology (CODATA) was established as an Interdisciplinary Body in 1966 with the principal objective to ensure the quality and accessibility of scientific data. In response to the 2004 Priority Area Assessment, CODATA developed a strategic plan that was made available for consultation in 2007. This focuses on three major themes:

1. global information commons
2. the digital divide, and
3. advanced data methods and information technologies.

It is notable that each of these themes has considerable overlap with the interests of the data centres and services. Bringing together these common interests and shared knowledge is a challenge that needs to be addressed in the future.

# Data and information *(contd.)*

## Strategic Committee on Information and Data

The *ad hoc* Strategic Committee on Information and Data met twice in 2007. In addition to considering the future structure and directions of ICSU's existing data structures, it is charged with considering whether other structures or mechanisms might be necessary to achieve ICSU's strategic goal: 'to facilitate a new, coordinated global approach to scientific data and information that ensures equitable access to quality data and information for research, education and informed decision making.'

The Committee will complete its work in 2008 so that its recommendations, which will set the direction for ICSU's future involvement with scientific data and information, can be considered by the General Assembly.

## Availability of scientific publications

The International Network for the Availability of Scientific Publications (INASP) was established by ICSU in 1992 with the aim of improving worldwide access to scientific information. Over the past 15 years, it has established a network of more than 3000 partners, including information professionals, librarians, science managers and academics in the developing world. Its role has evolved from the compilation of directories and provision of scientific publications at affordable cost, to encompass capacity enhancement in areas such as electronic publishing and internet bandwidth management.

INASP has undergone considerable internal restructuring in recent years. In 2005, INASP was formally recognized as an ICSU Interdisciplinary Body and was also established as an independent company with charitable status. A major focus for the future will be strengthening partnerships with other organizations, including ICSU Members and Interdisciplinary Bodies, with an interest in improving the accessibility of scientific information.

***'The Principle of the Universality of Science is fundamental to scientific progress. This principle embodies freedom of movement, association, expression and communication for scientists as well as equitable access to data, information and research materials. In pursuing its objectives in respect of the rights and responsibilities of scientists, the International Council for Science (ICSU) actively upholds this principle, and, in so doing, opposes any discrimination on the basis of such factors as ethnic origin, religion, citizenship, language, political stance, gender, sex or age. ICSU shall not accept disruption of its own activities by statements or actions that intentionally or otherwise prevent the application of this principle.'***

***Statute 5***

# Regional activities

## Regional Office for Africa

*AU-UNECA Science & Technology Exhibition*

The Regional Office for Africa has published three of the four Science Plans that were approved at the fifth meeting of the Regional Committee in March 2007: *Sustainable Energy; Health and Human Well-being;* and *Natural and Human-induced Hazards and Disasters*. The final Science Plan, *Global Environmental Change (including Climate Change and Adaptation)*, will be available in April 2008.

The Regional Committee met again in July and approved the proposal to implement the Science Plans. The implementation process has now begun, with international workshops held to develop fundable projects and identify key African experts, institutions and organizations to drive the process.

The Office has been working closely with the Scientific Research Association of Mozambique (AICIMO) to organize the pre- and post-ICSU General Assembly events, and the one-day symposium 'Science in Africa'. The schedule of events has been finalized and will include seminars and site visits in Mozambique and other African countries, based on the four priority areas of the Regional Office and two national priorities of Mozambique—marine sciences and fisheries, and education.

The Regional Office continues to forge links with non-governmental and intergovernmental organizations, including working closely with UNESCO at the regional level. In 2007, the Office continued its involvement with the African Union (AU) and New Partnership for Africa's Development (NEPAD), which included participating in the third African Ministerial Conference on Science and Technology in Mombasa, Kenya. During this gathering a new partnership between the Regional Office, AU, NEPAD, UN Economic Commission for Africa (UNECA), UNESCO, the African Development Bank, and other key players in science and technology on the African continent, was proposed.

**www.icsu-africa.org**

## Regional Office for Asia and the Pacific

In 2007, the focus for the Regional Office for Asia and the Pacific was developing the Science Plans that will guide the work of the Office in the coming years. The Science Plans are based on the three priorities identified for the region: natural and human-induced hazards and disasters; sustainable energy; and an ecosystem approach to water and food systems.

*The second Regional Consultation*

The initial plans for ecosystems, and hazards and disasters, were reviewed at the second ICSU Regional Consultation held in Chiang Mai, Thailand, in November. At the same meeting an initial dialogue on sustainable energy was held in order to narrow the scope of the topic so that it does not duplicate the initiatives of others and to ensure the maximum impact. Contributions from ICSU National Members, Scientific Unions and Interdisciplinary Bodies involved in the consultation will be crucial for the development of the Science Plans.

The Regional Committee for Asia and the Pacific met twice in 2007: in Tehran in March and in Chang Mai in conjunction with the second Regional Consultation.

The Office continues to forge close links with regional and international organizations including the InterAcademy Panel, the Science Council of Asia and UN bodies, including UNESCO, UNEP and the International Strategy for Disaster Reduction (ISDR). A meeting was held with the UNESCO Regional Office in Jakarta to plan long-term joint activities for Asia and the Pacific. Others attending the meeting included ISDR, the UN Economic and Social Commission for Asia and the Pacific, the Asia Disaster Preparedness Center and the Asian Institute of Technology.

**www.icsu-asia-pacific.org**

# Regional activities

## Regional Office for Latin America and the Caribbean

*The inauguration of the Regional Office*

The Regional Office for Latin America and the Caribbean, located at the Brazilian Academy of Sciences, was formally inaugurated in April with a ceremony attended by ICSU Scientific Unions and National Members, as well as distinguished guests from the region, including H.E. Sérgio Rezende, the Brazilian Minister for Science and Technology.

Prior to the inauguration, an international symposium was held to discuss future action in the four regional priority areas: mathematics education; biodiversity; sustainable energy and natural disasters. Scientific Planning Groups have been appointed for each priority area. The Planning Groups for mathematics education and natural disasters have both held their first meetings, while biodiversity and sustainable energy have scheduled meetings for early 2008.

The Regional Committee for Latin America and the Caribbean held its second meeting in conjunction with the inauguration of the Regional Office and the third was held in Mexico City in September, with the generous support of CONACYT, Mexico. Discussion items included the progress of the four Scientific Planning Groups and how to increase the engagement of the local scientific community in the activities of ICSU and its Scientific Unions.

The Regional Office also expanded its contacts with key international and national organizations in the region, including UNESCO, the International Development Research Council of Canada and the World Bank. An important effort was also made to increase the number of ICSU National Members in the region and engage the existing ones.

CONACYT, Mexico provided additional funding for the Regional Office, following the signing of a three-year agreement with the Brazilian Academy of Sciences.

**www.icsu-lac.org**

## Eastern and South-Eastern Europe

The countries of Eastern and South-Eastern Europe face special challenges in becoming, or resuming their place as, serious contributors to scientific knowledge. These challenges stem from the major socio-political transitions that began in the early 1990s and continue to this day, coupled, in some instances, with periods of disharmony and conflict.

As a follow-up to the UNESCO-ICSU World Conference on Science (Budapest, 1999) and in line with the Strategic Plan, ICSU and UNESCO launched an initiative, where senior figures from the Academies of Sciences of Eastern and South-Eastern Europe came together to discuss how their academies can contribute to global science, how they might collaborate to do so and re-establish their place in science education and research settings.

The event 'Global Science and National Policies: the Role of Academies', was hosted by the Academy of Sciences of Moldova, and took place in Chisinau, Moldova, in May. The importance attached to the conference was reflected in the presence of H.E. Mr Vladimir Voronin, President of the Republic of Moldova, at the opening session.

The conference recognized that, while individual Academies may find themselves in distinct socio-economic and political contexts, they share many things in common, and that there are advantages to be gained in comparing experiences and expertise, and in working together on common issues.

Participants resolved to make fuller use of existing mechanisms, networks and associations to discuss common issues concerning the roles of Academies in the promotion of excellence in science, in providing independent advice to governments and decision-makers, and in managing research activities.
The Academies were urged by ICSU and UNESCO to cooperate in planning, and seeking financial support for, regional research projects in natural sciences and science-society issues.

# ICSU welcomes new National Members

## The Lesotho Department of Science and Technology

The Lesotho Department of Science and Technology was created in 1994 to promote science and technology for socio-economic and sustainable development and is proactive in both the national and international scientific arenas. The Department is mandated to formulate and implement policies and programmes that will promote the growth of science and technology and create an enabling environment in which technological development will make meaningful contributions to a better quality of life for citizens of Lesotho and the region. The Department acts as a coordinating body, as a focal point for governments and a liaison point for various public and private stakeholders in science and technology. It also reviews, assesses and monitors S&T policy issues of national interest.

## The Seychelles Centre for Marine Research and Technology–Marine Parks Authority

The Seychelles Centre for Marine Research and Technology–Marine Parks Authority (a National Associate of ICSU since 1983) promotes marine research, education and the sustainable management of Seychelles Marine National Parks. It was formed in 2003 following the merger of the Seychelles Centre for Marine Research and Technology (SCMRT) with the former Marine Parks Authority (MPA). The amalgamation of these two organizations was part of the Ministry of Environment's strategy to provide a stronger scientific basis for the management of the marine parks and to increase the organization's capacity to undertake research projects. Since then, SCMRT-MPA has been engaged in a number of projects and programmes focused on marine species and habitat conservation, marine research, eco-tourism, environmental education, biodiversity, and the protection and management of the marine environment. SCMRT-MPA strives to achieve its mission through close collaboration with all its counterpart ministries, non-governmental organizations, educational establishments, the private sector and international partners.

## The University of the South Pacific (USP)

The University of the South Pacific (USP) is the premier provider of tertiary education in the Pacific region and an international centre of excellence for teaching, research consulting and training on all aspects of Pacific culture, environment and human resource development needs. Established in 1968, USP is the only university of its type in the world. It is jointly owned by the governments of twelve island nations and has campuses in all twelve: Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu and Samoa. The academic Schools, Departments, Institutes and Centres at the University are organized into four faculties: Arts and Law; Business and Economics; Islands and Oceans, and Science and Technology. The University also offers distance education and flexible learning programmes across its fifteen campuses, using advanced communication technologies (i.e. USPNet) to reach students across the vast expanses of the Pacific Ocean.

# Financial Summary

## Statement of income and expenditure

International Council for Science (ICSU) for the period
1 January 2007 to 31 December 2007

| | Euros |
|---|---|
| **Income** | |
| Membership dues | |
| National Members | 1 882 173 |
| Scientific Unions | 144 282 |
| Scientific Associates | 11 052 |
| Cancellation provision arrears | 7 368 |
| Membership dues for WCRP | 257 428 |
| Grants from | |
| UNESCO | 89 157 |
| NSF | 375 673 |
| France | 500 000 |
| Other foundations | 77 391 |
| Other income | 35 907 |
| Cancellation of provisions | 41 003 |
| Investment income | 100 050 |
| **Total income** | **3 521 484** |
| | |
| **Expenditure** | |
| Policy committees | 371 498 |
| Joint initiatives | 404 248 |
| ICSU Regional Offices | 152 460 |
| New initiatives | 660 009 |
| Governance meetings | 348 847 |
| Policy & administrative support | 1 237 024 |
| Contingency/Provision | 49 020 |
| Other expenses | 11 223 |
| Investment charges | 57 562 |
| **Total expenditure** | **3 291 891** |
| **Excess of income over expenditure** | **229 593** |

## Balance sheet

International Council for Science (ICSU) for the period
1 January 2007 to 31 December 2007

| | Euros |
|---|---|
| **Assets** | |
| Bank & cash balances | 1 142 614 |
| Marketable securities | 1 689 659 |
| UNESCO grant | 89 157 |
| NSF grant | 244 039 |
| Sundry debtors & prepayments | 336 954 |
| Fixed assets | 68 218 |
| **Total assets** | **3 570 641** |
| | |
| **Liabilities** | |
| WCRP | 77 970 |
| Sundry creditors & accruals | 689 119 |
| Provision | 649 331 |
| General fund | 424 628 |
| Mandatory reserve | 1 500 000 |
| **Total liabilities** | **3 341 048** |
| **Net Result** | **229 593** |

ICSU's principal source of 'core' income is dues from Members. The other major sources of income are grants from various organizations and foundations. The General Assembly approves draft budgets for the next triennium upon proposals received from the Executive Board, which is charged with finalizing the annual budgets. After consideration by the Committee on Finance and the Executive Board, the audited annual accounts are sent to all Members for approval. Annual dues are paid in accordance with Statute 43: 'Each Member of ICSU shall pay annual dues within a scale determined by the General Assembly. Each Scientific Union and National Scientific Member of ICSU may choose its own category for payment of dues. Each International and Regional Scientific Associate shall pay annual dues determined by the General Assembly. National Associates pay no dues.' A review of ICSU dues structure was completed in 2007 and will be presented to the General Assembly in 2008.

# Executive Board

## Officers

| | |
|---|---|
| Goverdhan Mehta | *President* |
| Catherine Bréchignac | *President-Elect* |
| Khotso Mokhele | *Vice-President for Scientific Planning and Review* |
| Hernan Chaimovich | *Vice-President for External Relations* |
| Ana María Cetto | *Secretary General* |
| Roger Elliott | *Treasurer* |

## Ordinary Members

### From Union Members:

| | |
|---|---|
| Giovanni Berlucchi | *IBRO* |
| Michel Denis | *IUPsyS* |
| Bryan Henry | *IUPAC* |
| Uri Shamir | *IUGG* |

### From National Members:

| | |
|---|---|
| Cynthia Beall | *USA* |
| Fu Congbin | *China* |
| Francis Gudyanga | *Zimbabwe* |
| Sergio Pastrana | *Cuba* |

# Secretariat

## Executive

| | |
|---|---|
| Thomas Rosswall | *Executive Director* |
| Carthage Smith | *Deputy Executive Director* |
| Tish Bahmani Fard | *Assistant Executive Director* |

## Environment and Sustainable Development

| | |
|---|---|
| Gisbert Glaser | *Senior Advisor* |
| Leah Goldfarb | *Science Officer* |
| Howard Moore | *Senior Advisor* |
| Rohini Rao | *Administrative Officer* |

## Scientific Planning and Special Projects

| | |
|---|---|
| Maureen Brennan | *Administrative Officer* |
| Paul Cutler | *Science Officer (August- )* |
| Laurie Geller | *Science Officer (until May)* |
| Patricia Ocampo-Thomason | *Science Officer and Regional Offices Liaison (June- )* |

## Communication and Information Technology (IT)

| | |
|---|---|
| Jacinta Legg | *Communications Officer (October- )* |
| Mustapha Mokrane | *IT Officer/Webmaster* |

## Administrative Staff

| | |
|---|---|
| Frederica Kostadinoff | *Administrative Officer* |
| Eric Leparmentier | *General Services* |
| Natacha de Marchi | *Accountant* |
| Elisabeth Merle | *Administrative Officer* |

## Regional Office for Africa

| | |
|---|---|
| Sospeter Muhongo | *Director* |
| Andrew Achuo Enow | *Programme Specialist in Biological Sciences* |
| Bongani Mahlalela | *Liaison Officer* |
| Kathy Potgieter | *Office of the Regional Director* |

## Regional Office for Asia and the Pacific

| | |
|---|---|
| Mohd Nordin Hasan | *Director* |
| Mohd Hizamddin Jaafar | *Administrative Officer* |
| Nor Zaneedarwaty Norman | *Science Officer* |

## Regional Office for Latin America and the Caribbean

| | |
|---|---|
| Alice Abreu | *Director* |
| Sérgio Gil | *Intern* |
| Sybelle de Jongh | *Professional Officer* |
| Ana Corlina Reis | *Intern (April–July)* |

# National Members

The list includes full Members, National Associates* and Observers**

| | |
|---|---|
| Argentina | National Scientific and Technological Research Council |
| Armenia | National Academy of Sciences of the Republic of Armenia |
| Australia | Australian Academy of Science |
| Austria | Austrian Academy of Sciences |
| Azerbaijan** | Azerbaijan National Academy of Sciences |
| Bangladesh | Bangladesh Academy of Sciences |
| Belarus** | National Academy of Sciences |
| Belgium | Royal Academies for Science and the Arts of Belgium |
| Bolivia | National Academy of Sciences of Bolivia |
| Botswana | Ministry of Communications, Science and Technology |
| Brazil | Brazilian Academy of Sciences |
| Bulgaria | Bulgarian Academy of Sciences |
| Burkina Faso* | National Centre for Scientific Research and Technology |
| Cameroon | Cameroon Academy of Sciences |
| Canada | National Research Council of Canada |
| Caribbean[1] | Caribbean Academy of Sciences |
| Chile | Chilean Academy of Sciences |
| China: CAST | China Association for Science and Technology |
| China: Taipei | Academy of Sciences located in Taipei |
| Colombia | Colombian Academy of Exact, Physical and Natural Sciences |
| Costa Rica** | National Academy of Sciences |
| Côte d'Ivoire* | Federation of Scientific Associations of Côte d'Ivoire |
| Croatia | Croatian Academy of Sciences and Arts |
| Cuba | Academy of Sciences of Cuba |
| Czech Republic | Academy of Sciences of Czech Republic |
| Denmark | Royal Danish Academy of Sciences and Letters |
| Egypt | Academy of Scientific Research and Technology |
| Estonia | Estonian Academy of Sciences |
| Ethiopia | Ethiopian Science and Technology Agency |
| Finland | Delegation of Finnish Academies of Science and Letters |
| France | Academy of Sciences |
| Georgia* | Georgian Academy of Sciences |
| Germany | German Research Foundation |
| Ghana | Ghana Academy of Arts and Sciences |
| Greece | Academy of Athens |
| Guatemala* | Academy of Medical, Physical and Natural Sciences of Guatemala |
| Hungary | Hungarian Academy of Sciences |
| India | Indian National Science Academy |
| Indonesia | Indonesian Institute of Sciences |
| Iran | University of Tehran |
| Iraq** | Ministry of Science and Technology |
| Ireland | Royal Irish Academy |
| Israel | Israel Academy of Sciences and Humanities |
| Italy | National Research Council |
| Jamaica | Scientific Research Council |
| Japan | Science Council of Japan |
| Jordan* | Royal Scientific Society |
| Kazakhstan* | National Academy of Sciences of Republic of Kazakhstan |
| Kenya | Kenya National Academy of Sciences |
| Korea, DPR** | State Academy of Sciences |
| Korea, Republic of | National Academy of Sciences, Republic of Korea |
| Latvia | Latvian Academy of Sciences |
| Lebanon | National Council for Scientific Research |
| Lesotho | Lesotho Department of Science and Technology |
| Lithuania | Lithuanian Academy of Sciences |
| Luxembourg | National Research Fund |
| Macedonia, FYR | Macedonian Academy of Sciences and Arts |
| Madagascar* | Ministry of Higher Education and Scientific Research |

# National Members *(contd.)*

| | |
|---|---|
| Malawi | National Research Council of Malawi |
| Malaysia | Academy of Sciences Malaysia |
| Mauritius | Mauritius Research Council |
| Mexico | Mexican Academy of Sciences |
| Moldova** | Academy of Sciences of Moldova |
| Monaco | Monaco Scientific Center |
| Mongolia | Mongolian Academy of Sciences |
| Montenegro | Montenegrin Academy of Sciences and Arts |
| Morocco | National Centre for Scientific and Technical Research |
| Mozambique | Scientific Research Association of Mozambique |
| Nepal | Royal Nepal Academy of Science and Technology |
| Netherlands | Royal Netherlands Academy of Arts and Sciences |
| New Zealand | Royal Society of New Zealand |
| Nigeria | Nigerian Academy of Science |
| Norway | Norwegian Academy of Sciences and Letters |
| Pakistan | Pakistan Association for the Advancement of Science |
| Panama | University of Panama |
| Peru | National Academy of Sciences |
| Philippines | National Research Council |
| Poland | Polish Academy of Sciences |
| Portugal | Academy of Sciences of Lisbon |
| Romania | Romanian Academy |
| Russia | Russian Academy of Sciences |
| Rwanda | Kigali Institute of Science and Technology |
| Saudi Arabia | King Abdulaziz City for Science and Technology |
| Senegal | Association of Senegalese Researchers |
| Serbia | Serbian Academy of Sciences and Arts |
| Seychelles | Seychelles Centre for Marine Research and Technology–Marine Parks Authority |
| Singapore | Singapore National Academy of Science |
| Slovak Republic | Slovak Academy of Sciences |
| South Africa | National Research Foundation |
| South Pacific[2] | University of the South Pacific |
| Spain | Ministry of Education and Science |
| Sri Lanka | National Science Foundation |
| Sudan | National Centre for Research |
| Swaziland | National Research Council |
| Sweden | Royal Swedish Academy of Sciences |
| Switzerland | Swiss Academy of Sciences |
| Tajikistan** | Academy of Sciences of Republic of Tajikistan |
| Tanzania | Tanzania Commission for Science and Technology |
| Thailand | National Research Council of Thailand |
| Togo | Chancellery of the Universities of Togo |
| Tunisia* | University Tunis El Manar |
| Turkey | Scientific and Technical Research Council of Turkey |
| Uganda* | Uganda National Council for Science and Technology |
| Ukraine | National Academy of Sciences |
| United Kingdom | Royal Society |
| United States | National Academy of Sciences |
| Uruguay** | National Council for Science, Innovation and Technology |
| Uzbekistan | Uzbekistan Academy of Sciences |
| Vatican City State | Pontifical Academy of Sciences |
| Venezuela** | Ministry of Science and Technology |
| Vietnam** | Vietnam Union of Science and Technology Associations |
| Zambia | Zambia Academy of Sciences |
| Zimbabwe | Research Council of Zimbabwe |

(1) Covering the following: Antigua and Barbuda, Bahamas, Barbados, Dominica, Grenada, Guyana, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago.

(2) Covering the following: Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu and Samoa.

# Scientific Unions

International Astronomical Union (IAU)
International Brain Research Organization (IBRO)
International Geographical Union (IGU)
International Mathematical Union (IMU)
International Union for Quaternary Research (INQUA)
International Society for Photogrammetry and Remote Sensing (ISPRS)
International Union of Anthropological and Ethnological Sciences (IUAES)
International Union of Biochemistry and Molecular Biology (IUBMB)
International Union of Biological Sciences (IUBS)
International Union of Crystallography (IUCr)
International Union of Food Science and Technology (IUFoST)
International Union of Forest Research Organizations (IUFRO)
International Union of Geodesy and Geophysics (IUGG)
International Union of Geological Sciences (IUGS)
International Union of the History and Philosophy of Science (IUHPS)
International Union of Materials Research Societies (IUMRS)
International Union of Microbiological Societies (IUMS)
International Union of Nutritional Sciences (IUNS)
International Union for Pure and Applied Biophysics (IUPAB)
International Union of Pure and Applied Chemistry (IUPAC)
International Union of Pure and Applied Physics (IUPAP)
International Union for Physical and Engineering Sciences in Medicine (IUPESM)
International Union of Pharmacology (IUPHAR)
International Union of Physiological Sciences (IUPS)
International Union of Psychological Sciences (IUPsyS)
International Union of Soil Sciences (IUSS)
International Union of Theoretical and Applied Mechanics (IUTAM)
International Union of Toxicology (IUTOX)
Union Radio Scientifique International (URSI)

# Interdisciplinary Bodies

## Assessment Bodies

Scientific Committee on Problems of the Environment (SCOPE)

## Thematic Bodies

Committee on Space Research (COSPAR)
International Polar Year (IPY)
Scientific Committee on Antarctic Research (SCAR)
Scientific Committee on Oceanic Research (SCOR)
Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)

## Global Environmental Change Programmes

DIVERSITAS: An International Programme of Biodiversity Science
International Geosphere-Biosphere Programme (IGBP)
International Human Dimensions Programme on Global Environmental Change (IHDP)
World Climate Research Programme (WCRP)

## Monitoring/Observation Bodies

Global Climate Observing System (GCOS)
Global Ocean Observing System (GOOS)
Global Terrestrial Observing System (GTOS)
Integrated Global Observing Strategy Partnership (IGOS-P)

## Data and Information Bodies

Committee on Data for Science and Technology (CODATA)
Federation of Astronomical and Geophysical Data Analysis Services (FAGS)
International Network for the Availability of Scientific Publications (INASP)
Scientific Committee on Frequency Allocations for Radio Astronomy and Space Science (IUCAF)
Panel on World Data Centres (WDC)

The Interdisciplinary Bodies of ICSU bring together different scientific disciplines to address scientific issues of international relevance that are of interest to ICSU Members.
Initially established by the General Assembly, these bodies are designed to become self-sustaining in their day-to-day operations and financing. They may also involve sponsors other than ICSU. The roles and structures of the Bodies vary depending on the area of science and the related needs of the international science community but they usually combine research and advisory functions.

# Scientific Associates

Academia de Ciencias de America Latina (ACAL)
Federation of Asian Scientific Academies and Societies (FASAS)
International Federation of Surveyors (FIG)
International Association of Hydraulic Engineering and Research (IAHR)
International Arctic Science Committee (IASC)
International Cartographic Association (ICA)
International Commission for Acoustics (ICA)
International Council for Laboratory Animal Science (ICLAS)
International Commission for Optics (ICO)
International Council for Scientific and Technical Information (ICSTI)
International Federation for Information Processing (IFIP)
International Federation of Library Associations and Institutions (IFLA)
International Foundation for Science (IFS)
International Federation of Societies for Microscopy (IFSM)
International Institute for Applied Systems Analysis (IIASA)
International Union for Vacuum Science, Technique and Applications (IUVSTA)
International Water Association (IWA)
Pacific Science Association (PSA)
Academy of Sciences for the Developing World (TWAS)

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# About ICSU

Founded in 1931, the International Council for Science (ICSU) is a non-governmental organization with a global membership of national scientific bodies (113 Members, representing 133 countries) and international Scientific Unions (29 Members). The Council is frequently called upon to speak on behalf of the global scientific community and to act as an advisor in matters ranging from scientific conduct to the environment. ICSU's activities focus on three areas: planning and coordinating research; science for policy; and strengthening the Universality of Science.


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