

Annual Report



2004

Strengthening international science
for the benefit of society



ICSU

International Council for Science

About ICSU

Founded in 1931, the International Council for Science (ICSU) is a non-governmental organization representing a global membership that includes both national scientific bodies (103 members) and international scientific unions (27 members).

ICSU's extensive membership network constitutes an international forum for scientific research and policy development.

In broader terms, because of its representative and diverse membership, the Council is increasingly called upon to speak on behalf of the global scientific community and to act as an advisor in matters ranging from ethics to the environment.

ICSU focuses its activities in the following areas:

Planning and coordinating interdisciplinary research to address major issues of relevance to both science and society

Advocating freedom in the conduct of science, promoting equitable access to scientific data and information, and facilitating science education and capacity building

Acting as a focus for the exchange of ideas, the communication of scientific information and the development of scientific standards

ICSU also helps create international and regional networks of scientists with similar interests and maintains close working relationships with a number of intergovernmental and non-governmental organizations, especially the United Nations organizations and the Academy of Sciences for the Developing World (TWAS).

Basic Science

In response to concerns raised by many of its members, ICSU convened an *ad hoc* Working Group to formulate a position statement on the value of basic research.

The following statement was approved and released by the ICSU Executive Board in November.

The Value of Basic Scientific Research

Basic scientific research is defined as fundamental theoretical or experimental investigative research to advance knowledge without a specifically envisaged or immediately practical application. It is the quest for new knowledge and the exploration of the unknown. As such, basic science is sometimes naively perceived as an unnecessary luxury that can simply be replaced by applied research to more directly address immediate needs.

However the demarcation between basic research and applied research is not at all clear cut. In reality they are inextricably inter-twined. Most scientific research, whether in the academic world or in industry, is a hybrid of new knowledge generation and subsequent exploitation. Major innovation is rarely possible without prior generation of new knowledge founded on basic research. Strong scientific disciplines and strong collaboration between them are necessary both for the generation of new knowledge and its application. Retard basic research and

inevitably innovation and application will be stifled.

New scientific knowledge is essential not only for fostering innovation and promoting economic development, but also for informing good policy development, and as a sound foundation for education and training. Notwithstanding, it is sometimes argued at a national level that investment in research should focus primarily, or even exclusively, on the use of existing information to develop applied solutions. Superficially at least, such an approach appears to be facilitated by the emergence of a global society, linked by internet and a continuous flow of information that anyone is able to access and use.

Whilst an exclusive focus on application may have some merit in the short-term, there are several reasons why neglecting basic research is seriously flawed in the longer term:

i. Basic and applied science are a continuum. They are inter-dependent. The integration of

basic and applied research is crucial to problem-solving, innovation and product development

ii. Knowledge is more than the information and data that might be provided via the internet; it is fundamentally a matter of cognitive capability, skills, training and learning. The exploitation and application of scientific information requires skilled scientists with a good understanding of the basic theories and practice of science. Successful transfer of scientific knowledge requires well-trained scientists at both ends of the exchange

iii. Excessive dependency on scientific progress in other countries is rarely likely to lead to the resolution of local problems. Countries need to be able to generate their own scientific knowledge and adapt this to their own local context and needs

iv. The practice of science is increasingly international and the research agenda is set by those who participate. A country with no basic scientific research capacity

effectively excludes itself from having any real influence on the future directions of science

As the move towards a global knowledge economy accelerates, the necessity of having a thriving scientific community to generate new knowledge and to exploit it, both in the academic world and industry, becomes irrefutable. Adequate public investment in basic science education and research is a critical factor underpinning socioeconomic

development. All countries need to develop long-term sustainable strategies for investment in science. Support for basic science is not something that can be postponed or diminished when times are hard in the misplaced hope that applied research alone will provide a better return.



Joint Message from the President



“ICSU has a critical role to play in planning and coordinating international interdisciplinary research that meets the needs of society.”

Professor Jane Lubchenco
President, ICSU

Goverdhan Mehta will take over as President of ICSU in October, 2005 and so this is the last message from the current leadership. This is an opportune moment to reflect on some of the key themes of the past three years and the future challenges for ICSU.

SCIENCE FOR POLICY

In 2002, at the World Summit on Sustainable Development in Johannesburg, the ICSU President, Professor Yoshikawa, declared that “The S&T community accepts its responsibility to address the issues of sustainable development...” In 2003, at the World Summit on the Information Society in Geneva, ICSU picked up on the same theme and declared that the science community is willing to play its part in bridging the knowledge divide between nations. These messages have been reinforced in the subsequent discussions at the UN Commission on Sustainable Development, in which ICSU has played a very active role. The UN dialogues are an important forum for bringing together science and society to identify research needs in relation to socio-economic development. There is a continuing and important role for ICSU to play in planning and coordinating interdisciplinary research in areas such as energy, water, climate change, biodiversity. However, the research that is necessary to integrate the three pillars of sustainable development – environmental social and economic – still needs to be developed further. This cannot be achieved by the science community in isolation and it presents a major challenge for the future.

POLICY FOR SCIENCE: CAPACITY BUILDING AND COLLABORATION

The importance of science for development has been emphasized in a number of high profile reports over the past 12 months. The report of the UN Task Force on Science and Technology and Innovation, the InterAcademy Council report “Inventing a Better Future” and, most

recently, Tony Blair’s UK Commission on Africa have all highlighted the need for long-term investment in scientific capacity building.

It is against this background that two very significant changes in ICSU’s structure took place during 2004. An agreement was signed with the National Research Foundation, South Africa, to establish the first ICSU Regional Office in Pretoria. Progress was also made in identifying host countries for Offices in Latin America and the Caribbean, Asia and the Pacific, and the Arab Region. 2004 was also marked by the inaugural meeting of the new Policy Committee on Developing Countries. These changes will ensure that ICSU is fully aware of the needs and priorities of developing countries and that capacity building activities of the whole ICSU family are designed accordingly.

A critical aspect of building scientific capacity is international collaboration. The free exchange of scientists and scientific data and information are crucial for scientific progress and for ensuring that local problems are addressed using the best science. Compared with this time last year, the visa situation for scientists wishing to enter the USA, has improved considerably. The pressure of the international science community, including ICSU and its Members, has been instrumental in this but we all need to remain vigilant.

NEW SCIENCE PROGRAMMES

The importance of ICSU as an institution that is uniquely able to plan and coordinate major international science programmes, was illustrated in 2004 with the publication of “A Framework for the International Polar Year 2007-08”. At the General Assembly in 2002, a fourth International Polar Year more than a century after the first one was simply an aspiration in the minds of a few dedicated scientists. ICSU picked up on this, brought these scientists together, consulted very broadly with the international

and the Executive Director

community, and two years later produced a Framework plan that has been universally adopted. The excitement and enthusiasm generated by the International Polar Year is enormous. Natural and social scientists are planning new trans-national collaborations that can be expected to inform and shape polar science for decades to come.

The end of 2004 was marked by the tragic earthquake and tsunamis in the Indian Ocean. This served as a vivid reminder to us all that that science still has a long way to go. It is highly unlikely that we will ever be able to predict and prevent all natural disasters but in the aftermath of the Indonesian earthquake, it is clear that scientific knowledge has a key role to play in developing more effective mitigation strategies. ICSU's initial response to the tsunami was to work with its Scientific Unions to produce a position statement that fed into the World Conference on Disaster Reduction in Kobe in January this year. A scoping study for a new international interdisciplinary programme on natural and man made hazards is also being launched and should be completed for Members to consider at the General Assembly.

The Priority Area Assessment on Science and its Relation to Sustainable Development (ICSU, December 2003) outlined very clearly that a major challenge for ICSU is to further strengthen the involvement of social sciences in its activities. In 2004, ICSU cosponsored a workshop on "bridging scales" of the Millennium Ecosystem Assessment. How can you link knowledge about ecological and social systems at various scales? This is a methodological challenge but also throws up the more significant challenge of how to identify scientists willing to work outside their disciplinary box. Similar challenges, in another area, led to ICSU organizing a workshop on global socio-economic data as a contribution to the important inter-governmental initiative to develop of a global system of Earth observations.

LOOKING TO THE FUTURE

At the General Assembly in Rio de Janeiro in 2002, Members requested that ICSU develop a strategic plan. In an organization like ICSU, which has never previously had a clearly articulated strategy, this has been a complex process. It has involved a number of in-depth reviews and assessments and many hours of voluntary work from busy scientists all over the world. In November, the Executive Board considered the first draft of the overall strategic plan for 2006-2011. We are optimistic that at the General Assembly in Suzhou in October this year, we will have an exciting strategic plan that lays out a clear vision for ICSU over the next six years. It must also provide a solid basis for attracting the additional financial and human resources that will be necessary to ensure that ICSU can continue play a lead role in strengthening international science for the benefit of society.

Jane Lubchenco
President

Thomas Rosswall
Executive Director



“The strategic planning exercise is laying out a new and ambitious vision for ICSU over the next six years.”

Professor Thomas Rosswall
Executive Director, ICSU



Scientific Committee on Antarctic Research (SCAR)

SCAR is an Interdisciplinary Body of ICSU that was formed in 1958. Following an independent review in 1999, SCAR has been substantially restructured. The previous Secretariat has been converted to an Executive Office run by a new Executive Director, Dr. Colin Summerhayes, formerly of UNESCO, and the Committee has adopted a new Constitution and Rules of Procedure, which embrace a new vision and mission. The Committee has five main objectives:

- to initiate, develop and coordinate high quality international scientific research in the Antarctic region, and on the role of the Antarctic region in the Earth system;
- to provide objective and independent scientific advice to the Antarctic Treaty Consultative Meetings and other organizations on issues of science and conservation affecting the management of Antarctica and the Southern Ocean;
- to facilitate free and unrestricted access to Antarctic scientific data and information;
- to develop scientific capacity in all SCAR Members, especially with respect to younger scientists, and to promote the incorporation of Antarctic science in education at all levels;
- to communicate scientific information about the Antarctic region to the public.

SCAR held its first Open Science Conference on July 26-28, 2004, in Bremen (Germany), with the title "Antarctica and the Southern Ocean in the Global System". Around 1000 people registered for the meeting, which provided important opportunities to develop cross-disciplinary links. SCAR has an *ex officio* seat on the IPY Joint Committee.

International Arctic Science Committee (IASC)

In November 2004, IASC became the 24th ICSU Scientific Associate. IASC is a non-governmental organization whose aim is to encourage and facilitate cooperation in all aspects of Arctic research, in all countries engaged in Arctic research and in all areas of the Arctic region. This Committee has been active in the preparations for the IPY and has an *ex officio* seat on the IPY Joint Committee.

IASC, which was founded in 1990, strives to integrate human, social and natural sciences concerned with the Arctic and provide scientific advice on Arctic issues. The main activity of IASC is to assist with the development of research projects for which circumpolar or international cooperation is necessary. Members of IASC are national science organizations.

Six IPY Research Themes

The six research themes in the IPY Framework document are:

- **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 to improve projections of future change
- **Global Linkages:** to advance understanding on all scales of the links and interactions between polar regions and the rest of the globe, and of the processes controlling these
- **New Frontiers:** to investigate the frontiers of science in the polar regions
- **Vantage Point:** to use the unique vantage point of the polar regions to develop and enhance observatories from the interior of the Earth to the Sun and the cosmos beyond
- **Human Dimension:** to investigate the cultural, historical, and social processes that shape the sustainability of circumpolar human societies, and to identify their unique contributions to global cultural diversity and citizenship.



International Polar Year 2007-2008

The polar regions serve as a unique barometer of environmental change and provide important insights into the health of the planet as a whole. It is envisioned that the International Polar Year (IPY) 2007-2008 will be an internationally coordinated campaign of research that will initiate a new era in polar science.

The IPY will be bipolar in focus, multidisciplinary in scope and truly international in participation. It will provide a uniquely comprehensive “snap-shot” of measurements for comparison with previous and future records to inform our knowledge of changing planetary processes.

The fundamental concept of the IPY 2007-2008 is of an intensive burst of internationally coordinated, interdisciplinary, scientific research and observations focused on the Earth’s polar regions.

Consultation and Planning

ICSU responded to overwhelming interest from scientists and polar and global research bodies by establishing an international IPY Planning Group in February 2003.

Working in close consultation with the international polar scientific community, the Planning Group drafted the IPY Framework document, which contains a Science Plan, a Data Management Plan, and an Education, Outreach and Communication Plan.

This Framework Document, published in 2004, was based on proposals that were collected from some 500 individuals, from over 40 governmental and non-governmental organizations that have endorsed or expressed support for IPY 2007-2008, and from the 32, purposely established, IPY National Committees or National Points of Contact.

The planning process also involved discussions and debate at numerous international meetings covering many scientific disciplines. This included a series of “town” meetings and two Discussion Fora hosted by ICSU, which were attended by representatives of the IPY National Committees and a variety of polar organizations.

A new Joint Committee has been established with the World Meteorological Organization (WMO) to oversee the implementation of these plans and the coordination of activities. This Committee will be supported by an International Programme Office located in Cambridge, UK and a WMO IPY office located in Geneva.

Further details of the IPY 2007-2008 are available at: www.ipy.org

Principal Objectives

The IPY aims to exploit the intellectual resources and science assets of nations worldwide to make major advances in polar knowledge and understanding, while leaving a legacy of new or enhanced observational systems, facilities and infrastructure.

It aims to inspire a new generation of polar scientists and engineers, as well as stimulating the interest and participation of polar residents, schoolchildren, the general public, and decision-makers, worldwide.

IPY 2007-2008 will take place 50 years after the International Geophysical Year and 125 years after the first International Polar Year.





Natural Hazards

Natural and human-induced hazards has been identified as a high priority in several of ICSU's newly completed strategic reviews. The planning for a new international interdisciplinary programme on natural and human-induced hazard is being accelerated. This will build on the existing activities of several International Scientific Unions and UN organizations and integrate the geophysical, ecological and human dimensions of disasters.

As an immediate response to the Indonesian Earthquake, the Executive Board released the following position statement to feed into the World Conference on Disaster Reduction (Kobe, Japan, January 2005).

As the recent tragic events in the Indian Ocean have shown only too vividly once again, natural hazards (earthquakes, tsunamis, floods, hurricanes, landslides, tornadoes, volcanic eruptions, and other geophysical phenomena) are an integral component of life on Earth. These can have disastrous effects on vulnerable communities and ecosystems. Only by understanding how and where such hazards may occur, what causes them, what circumstances increase their severity, and what their impacts may be, will it prove possible to develop effective mitigation strategies. In practice, this requires addressing issues such as real-time monitoring and prediction, emergency preparedness, public education, post-disaster recovery, engineering, land use, and construction practices.

Coordinated approaches involving scientists, engineers, policy-makers, builders, investors, insurers, news media, educators, relief organizations, and the public are therefore essential if the devastating effects of natural hazards are to be reduced.

In order to reduce vulnerability to natural hazards, the International Council for Science strongly endorses the need for:

- fundamental research on the Earth system and its dynamics,
- integrated research on the impact of natural disasters on social and ecological systems,
- agreement on an international global observation framework for the collection, management and open sharing of data and information on natural hazards,
- mapping of the known

exposures of human populations, resources and economic activities to multiple disasters,

- integrated models that combine geophysical, ecological, demographic and economic aspects of disaster scenarios,
- establishment of coordinated international detection and early warning systems,
- building of indigenous scientific and technical capacity in vulnerable regions to take advantage of existing knowledge and stimulate local innovation,
- development and evaluation of prevention and mitigation programmes in the most risk-prone areas,
- dissemination of the relevant results to policy-makers and the public, and

The end of the year was marked by a massive earthquake off the coast of Indonesia that triggered tsunamis, which spread across the Indian Ocean, killing over 200,000 people and leaving many more homeless and destitute.

This tragic event galvanized the international scientific community to consider how it might contribute to ensuring that human vulnerability to natural disasters is significantly reduced in the future.

- a renewed focus on public education, particularly in vulnerable communities.

Science has contributed much to the understanding of natural hazards but, as recent events have shown, the natural environment remains dangerously unpredictable. Scientific knowledge and technologies are not always available when and where they are needed. A new strategic international and interdisciplinary approach to science is necessary to more fully exploit existing knowledge and identify and address the unknown. At the same time more effective strategies for mitigation of the effects of natural hazards need to be developed and deployed. Only when good science and policy making are combined effectively will the world become a safer place.

This statement draws on material from - the American Geophysical Union (1996, 2000: http://www.agu.org/sci_soc/policy/positions/naturalhaz.shtml);

- the International Union of Geodesy and Geophysics (Jan 2005: <http://www.iugg-georisk.org>);

- the ICSU Committee on Disaster Reduction (2002: http://www.icsu.org/Gestion/img/ICSU_DOC_DOWNLOAD/210_DD_FILE_state-m-NDR_Apr_02.pdf); and,

- the International Global Observing Strategy ad hoc Working Group on Geo-hazards (2002: <http://dup.esrin.esa.it/igos-geohazards/home.asp>).

The Geo-Unions and UNESCO are also developing plans for the Year of Planet Earth (2005-2007), which will include a hazards theme (www.esfs.org).

“The scientific community has actively embraced the immense challenge of providing and sharing the knowledge needed to achieve the Millennium Development Goals.”

Professor Jane Lubchenco,
President, ICSU

ICSU at the 12th Session of the Commission on Sustainable Development

The 12th session of the UN Commission on Sustainable Development (CSD, New York, 19-30 April 2004) reviewed progress, or lack of it, in meeting the Millennium Development Goals related to freshwater, sanitation and human settlements.

The S&T Community, represented by ICSU and the World Federation of Engineering Organisations (WFEO), was invited to participate, alongside governments and intergovernmental organizations, in the work of the CSD, as one of nine ‘Major Groups’ (different civil society sectors, and business and industry) .

Each Major Group had an opportunity to submit a Dialogue Paper summarizing their priorities for enhancing sustainable development in the three focus areas.

Priorities suggested by the S&T Community included: strengthening national water observing systems and their integration in global earth observations; undertaking interdisciplinary research on water provision and consumption systems; and accelerating scientific and technological capacity building for water management, sanitation and human settlements planning in developing countries. These and other S&T priorities were reflected in the official CSD-12 outcome.

ICSU President Jane Lubchenco participated in a high-level CSD dialogue session attended by more than one hundred government ministers. Her introductory statement during the session is available at www.icsu.org.

The next CSD session (CSD-13, to be held in 2005) will have to agree on new international policy recommendations focused on how to do better in the future with regard to sustainable water, sanitation and human settlements development.

The Paper prepared by ICSU, in cooperation with WFEO and the International Social Science Council (ISSC), is available in English on the ICSU website and in all six UN conference languages on www.un.org/esa/sustdev/csd/csd12.



ICSU Working Group on Energy and Sustainable Societies

In response to a mandate from the 27th General Assembly, a Working Group was convened to evaluate the opportunities for new ICSU activities focused on issues of sustainable energy.

The Working Group helped to define the ways in which ICSU could fulfill a niche among the existing organizations that address energy R&D issues, for example, by removing barriers among different disciplines involved in energy R&D; by removing barriers to wider use of existing energy technologies; and by networking and integrating existing energy R&D activities.

The specific project ideas suggested by the Working Group are being considered as part of ICSU's broader strategic planning efforts.

International Conference for Renewable Energies

ICSU, together with the World Conservation Union, coordinated the input from the S&T community in the International Conference for Renewable Energies (1-4 June 2004, Bonn, Germany; <http://www.renewables2004.de/>). The conference, which brought together 3600 participants from 154 countries, included multi-stakeholder dialogue sessions similar to those held at the meetings of the Commission on Sustainable Development. The S&T stakeholder delegation also had numerous opportunities to participate in the official ministerial meeting sessions.

The Political Declaration, International Action Programme, and Policy Recommendations that emerged from the Conference all included statements about the importance of strong support for renewable energy R&D efforts.

Science and Technology for Sustainable Development



The Report “Harnessing Science, Technology and Innovation for Sustainable Development” was published by the ICSU-ISTS-TWAS Consortium *ad hoc* Advisory Group

This report presents the Advisory Group’s views on the fundamental principles that should underlie efforts to harness science and technology for sustainable development.

Following active participation in the 2002 World Summit on Sustainable Development, ICSU, together with the Initiative on S&T for Sustainability (ISTS) and the Academy of Sciences for the Developing World (TWAS) established an international, interdisciplinary Advisory Group to help identify opportunities and strategies for more effectively harnessing science and technology (S&T) for sustainable development.

This Advisory Group’s report provides a conceptual framework for understanding the relationships among the different types of activities and stakeholders involved in these efforts. This framework emphasizes the need to view the creation of new scientific information and technical capabilities as part of an experimental, social process in which the producers and end-

users of scientific and technical knowledge interact to identify research and development (R&D) priorities, and to translate knowledge into real-world action.

The report also proposes a set of initial priorities for issues where greater scientific understanding and technical capacity is most critical. This includes four broad cross-cutting themes:

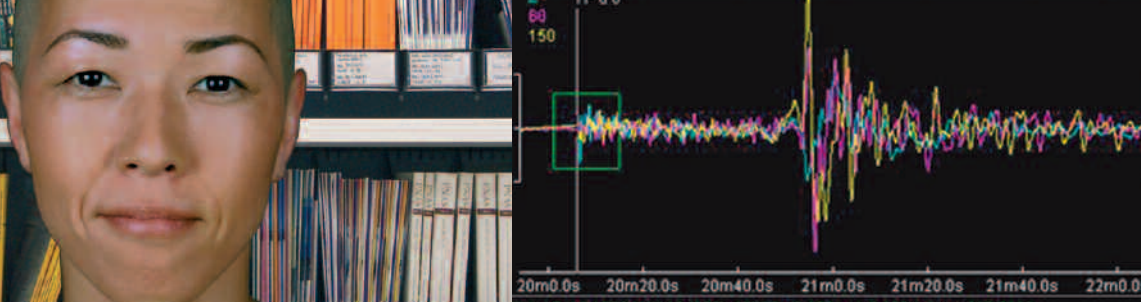
- *Resilience and Vulnerability of Social-Ecological Systems;
- *Governance Institutions for Sustainable Development;
- *Sustainable Production and Consumption;
- *The Role of Behaviour, Culture, and Values.

Many existing R&D programmes address these issues, but there is a need to augment such efforts

with place-based, systems-oriented investigations that not only bridge divides among natural science, social science, and engineering disciplines, but that also integrate formal R&D efforts with informal grassroots knowledge and innovation.

The Advisory Group recommends that a key role for organizations such as ICSU, ISTS, and TWAS is to create an ongoing mechanism for convening dialogues within the S&T community and among the wide array of societal actors who have the potential to utilize new S&T information for addressing problems of sustainable development. The goal of these dialogues is to share information and perspectives, and to develop common agreement on priorities for future R&D efforts. This must be a long-term, evolving process that develops in response to new

input and changing needs. In the long-term, this could become a high-profile activity that is seen as a central hub of knowledge, leadership, and exchange of new ideas among the global community. The UN Commission on Sustainable Development’s Multi-Stakeholder Dialogue process could provide an excellent platform for such efforts.



Support for the Global Earth Observation System of Systems (GEOSS) and the Integrated Global Observation Strategy (IGOS)

Monitoring of the Earth system is required in order to detect, attribute and understand change. Improved monitoring should reduce uncertainties in model predictions and enable more accurate assessment of future implications.

ICSU is a co-sponsor with various UN organizations of the three Global Observing Systems that cover the climate, the oceans and land.

• INTEGRATED GLOBAL OBSERVATION STRATEGY (IGOS)

The three global observation systems are among 14 Partner organizations of the Integrated Global Observation Strategy (IGOS) that seeks to coordinate the major satellite and surface-based systems for global environmental observations. The Partners work together to optimize organization and management in order to ensure collection and ready access to data that is required for scientific research and informed decision-making.

• SECOND EARTH OBSERVATION SUMMIT (TOKYO, APRIL 2004)

ICSU represented the international science community at the second Earth Observation Summit (Tokyo, April 2004). This Summit was part of a new inter-governmental initiative to develop an implementation plan for an integrated Global Earth Observation System of Systems (GEOSS). One of the key issues that ICSU highlighted was the critical relationship between scientific research, observations, assessments and policy-making.

• ICSU WORKSHOP ON GLOBAL SOCIO-ECONOMIC DATA

There is a particular need for greater understanding of the interactions between ecological and social systems at local, regional and global scales. This makes it necessary to collect and manage socioeconomic data in such a way that they can be analyzed with observations of the physical and biogeochemical components of the Earth system.

Following the second Earth Observation Summit, and on behalf of the IGOS Partners, ICSU convened a workshop to explore the generic barriers on integrating global socioeconomic and geophysical data. The workshop identified a lack of awareness and expertise as a particular problem in this area. It produced a number of recommendations for the IGOS partners, governments and data experts.

The International Network for Access to Scientific Publications (INASP)

INASP was created in 1992 with the goal of improving world-wide access to scientific information. In just over a decade, it has developed a network of over 3000 partners, including science information professionals, librarians, science managers and academics in the developing world.

Many of these were brought together with publishers and donor agencies in November in Oxford (UK) for a symposium, "Investing in Scientific Knowledge: Strategies and Models for the Developing World". There was a strong joint commitment from the government, public and private partners who attended, to work with INASP to help bridge the information divide between the North and the South.

2004 also marked a significant step in the evolution of INASP as an organization. It was established as an independent company with charitable status and was formally recognized as a new ICSU Interdisciplinary Body.

For more information: www.inasp.info

Scientific Data & Information

“The Panel strongly recommends that ICSU assume an international leadership role in identifying and addressing critical policy and management issues related to scientific data and information”

*Roberta Balstad
Chair of the ICSU PAA Panel on
Scientific Data and Information*

The flow of scientific data and information is one of the most critical factors in promoting the participation of scientists in international research and in ensuring the universality of science.

As well as being of importance to science itself, publicly available scientific data are increasingly important for decision-making by governments and many sectors of society, from clinical practitioners to farmers.

The nature and use of scientific data and information, the conditions under which scientific data and information are produced, distributed, and managed, and the role of scientists and other actors in these processes have been changing rapidly in recent years. These changes are partly a result of the revolution in computational capacity and connectivity that together have expanded the quality and quantity of research data. They are also related to the emergence of new questions in scientific research that require different types of data. Taken together, these changes are providing scientists throughout the world with more and enhanced access to research data and information. The benefits of this include the growing involvement of scientists in international research projects and increased scientific and policy interest in global scale and comparative research activities.

The ICSU Priority Area Assessment on Scientific Data and Information, which was published in December 2004, considers all of these issues and includes over 50 recommendations on future needs and priorities. Several of these relate to the restructuring of existing ICSU bodies but the report as a whole is addressed to all those with an interest in strengthening international science for the benefit of society. It highlights the importance of professional data and information management and the urgent need to build capacity in this area in all countries, the importance of coordination within the ICSU family and beyond, and the need to modernize or replace existing structures and mechanisms.

Future priorities and needs:

- **Professional data management**
- **Long-term planning and investment**
- **Modernization/transition of current infrastructures, systems**
- **New infrastructure in some areas**
- **International, interdisciplinary coordination**
- **Supportive national and international policies**

Grants for Interdisciplinary Science

The Grants Programme

In partnership with UNESCO, and with additional support from the United States, ICSU provides seed funding for interdisciplinary projects with an international scope.

The grants programme supports interdisciplinary science in five selected priority areas:

- Emerging science and the creation of new knowledge
- Science and technology for sustainable development
- Capacity building and science education
- Dissemination of data and/or information from science and technology
- Science / policy interface

Grants Awarded in 2004 for projects to be completed in 2005

<i>Lead applicant</i>	<i>Title of Proposal</i>
CODATA	E-science and the Information Society: the road to Tunis
DIVERSITAS	Biodiversity and Ecosystem Carbon Storage
IGU	Geographical Perspectives on Sustainable Development: networking local area partnerships with teachers and young scientists
IUGG	Augmenting Groundwater Resources by Artificial Recharge in S. E. Asia
IUPHAR	Consolidation and Annotation of Knowledge Concerning Receptors and Sites for Drug Action in the Human Genome
WCRP	Scenarios to Aid Regional Food Security Policy Formulation

Qualifying for a grant

Projects are always led by an ICSU Scientific Union or by an ICSU Interdisciplinary Body.

Supporting applicants might include ICSU National Members and/or other Unions, Interdisciplinary Bodies and Scientific Associates.

ICSU Scientific Union Members, organized by scientific discipline, provide focused expertise. Through their international membership, they play a crucial role as representatives of the world wide scientific community and amplify the impact of ICSU projects in their respective fields.

ICSU Interdisciplinary Bodies are created with a specific mission focused on high priority international research topics.

The ICSU grants programme benefits from the collective scientific knowledge of the entire ICSU family.

Supporting Interdisciplinary Science

Projects carried out in 2004

Foundation of an African Institute for Mathematical Sciences (AIMS)

IUTAM • IUGG • IMU • IUPAP • IUPAC • IAU • TWAS

The African Institute for Mathematical Sciences (AIMS) is a unique initiative, involving strong North-South collaboration, African and European Universities, and scientists from across the world with the goal of sharing knowledge and experience to help build scientific capacity in Africa. Based in Muizenberg, South Africa, the Institute offers a one-year course for mathematics and science graduates of African universities, giving them cutting edge mathematical and computing research skills.

Seed-funding from ICSU/UNESCO has been critical in getting AIMS started. 30 African students were enrolled in the first 2003-4 AIMS programme and 45 for 2004-5. A workshop on Capacity Building in the Mathematical Sciences was held at the Institute in April 2004, with 48 participants from 17 African States and 16 from outside of Africa.

A 10-day residential course (the first stage of a three-month professional development course) was held in July 2004 for 40 mathematics schoolteachers from all parts of South Africa on the subject "Mathematical Thinking, Problem Solving and Technology in Teaching and Learning Mathematics".

International Nitrogen Initiative (INI)-Phase 1

SCOPE • IGBP

To continue to meet the global demands for food, energy and fiber and minimize environmental problems, significant improvements are required in the efficiency with which nitrogen fertilizer is utilized within production systems. INI's goal is to optimize the beneficial use of nitrogen and minimize its negative effects on human well-being and the environment. The Initiative is organized on the basis of regional centres and networks for nitrogen science, with a central coordinating unit based in the USA. Seed funding from ICSU/UNESCO has been instrumental in the establishment of the Latin America, Africa and Asia centres.

Phase I of INI will be organized around crosscutting themes, initially focusing on natural processes (biological nitrogen fixation, denitrification), agriculture, fertilizers, animal production, human waste and energy production/use. Studies are being performed at both regional and global levels. At the regional level, each centre will initially conduct a Phase I assessment. These assessments should inform the development of scientific, technological and policy tools that can be applied in specific regions. At the global level, INI will assess the current status of knowledge on nitrogen cycling and identify research gaps.

Comet/Asteroid Impacts and Human Society

IAU • IUGG • IUGS • IUPsyS • COSPAR • SCL • SCOR • USA

The goal of this project is to identify the current state of knowledge and the major unresolved questions concerning the effect of asteroid or comet impacts on human society. It addresses questions of the probability and scale of impacts, potential consequences and how the negative effects could be reduced. It also identifies gaps in current knowledge and areas for future research.

In order to address these complex issues, a workshop was organized in Tenerife in November, with 38 scientists from 15 countries participating. This event was unique in bringing together experts from many diverse disciplines, which prompted lively discussion and helped establish many new contacts across subject borders.

The topic is of considerable interest to policy-makers and the project has been presented to relevant UN committees and is being followed closely by the OECD. The immediate product of the workshop will be a policy document to help both the public and politicians understand the issues addressed.

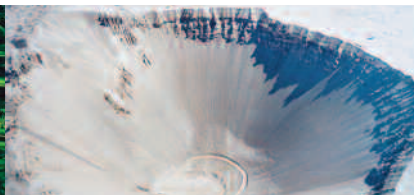
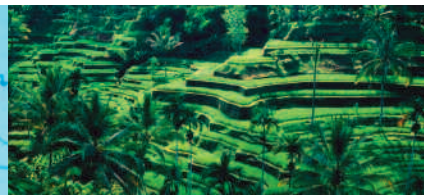
Review of Scientific Knowledge of the Global Iron Cycle

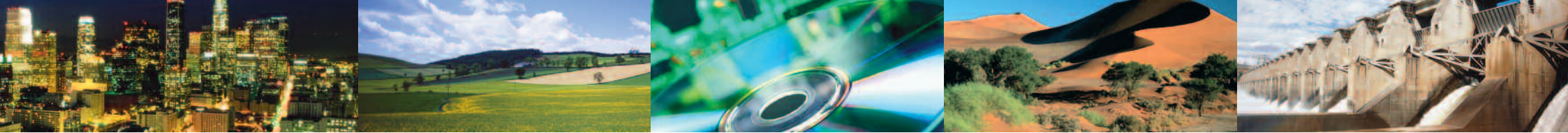
IGBP • SCOR • WCRP

This project brings together terrestrial, atmospheric and aquatic scientists in a multidisciplinary analysis of the global dust / iron cycle, in which iron-containing soil dust is transported from land through the atmosphere to the oceans, affecting ocean biogeochemistry and hence feeding back on climate and dust production.

A workshop was held in April 2004 in the UK that brought together 19 scientists from 12 countries, with relevant expertise in various aspects of the global dust/iron cycle. This provided the foundation for an in-depth review and synthesis of the current knowledge of the Global Iron Cycle, which will be published in a series of papers in peer-reviewed journals. The first of these appeared early in 2005 (Jickells *et al*, Science, 308, 67-71).

A major follow-up meeting is being organized for Sept. 2005 to plan a coordinated set of *in situ* experiments. The project is a collaboration with many other international programmes and will contribute to the new IGBP-led initiative - Analysis, Integration and Modelling of the Earth System (AIMES).





Supporting Interdisciplinary

Biodiversity, Health and the Environment

SCOPE • DIVERSITAS • France

Funding from ICSU/UNESCO facilitated the organization of an intensive 1-week Rapid Assessment Project (RAP) workshop hosted by UNESCO in Paris. This brought together 35 international experts from natural, clinical and social sciences.

A major objective is to identify research priorities that will be incorporated into a new initiative on environment and health that is being planned by DIVERSITAS and other global environmental change programmes under the auspices of the Earth System Science Partnership (ESSP). In addition, a full synthesis of the current status of scientific knowledge on the interactions between biodiversity, human health and the environment will be produced. This will be accompanied by a policy brief, and other publications, addressed to a wider audience.

Preservation of Data from WWSSN Film Chips

SCL/ILP • IUGG

The objective of this project is to save part of the five million 20 year-old film chips which are deteriorating at the USGS Albuquerque Seismological Laboratory. These chips contain unique and valuable earthquake recordings made before the advent of digital seismology.

With ICSU/UNESCO support, an initial scanning project was completed in 2004, with over ten thousand film chips scanned into digital format for 116 selected earthquakes from 38 of the 120 World Wide Standardized Seismograph Network (WWSSN) stations. The scanned images are being made readily available via the Data Management Centre of Incorporated Research Institutions for Seismology (IRIS).

26 earthquake archives are online, and about 100 more archives are waiting in construction. It is hoped that users of the image files will convert them to digital data files. IRIS DMC is now working hard to make the necessary digitizing software freely available.

Dark Nature

IUGS • INQUA • IUGG • IGU • IGBP

Changes in the natural environment are not a new phenomenon. Rapid environmental changes have taken place and have profoundly damaged past societies. For example, the Holocene period in Africa was marked by desertification in the Sahara and large flooding events in Mozambique. Similar environmental changes are happening at the moment too and understanding past events should improve our preparedness for the future.

Six meetings (in Mauritania, Mozambique, Argentina, Iran, Canada and Italy) have been organized to allow scientists from a wide range of disciplines - natural and social sciences and humanities - to debate the impact of rapid environmental changes on past societies. These debates have attracted considerable media attention and the proceedings are being published in academic journals

The cumulative knowledge coming out of all these inquiries will eventually be published in "Dark Nature", a book aimed at the non specialist public. This should be of interest to a wide range of audiences including politicians, ministries of the environment, media and insurance companies.

Databases of Bibliographical and Archival Sources

IUHPS • IAU • Russia • Mexico

The principal objectives of this 'World History of Science Online' project are to:

- make the world's scientific and technological bibliographies and archival sources accessible through a central website.
- provide online access to existing bibliographies and catalogues of archival sources on history of science, medicine and technology and encourage new work with the prospect of prompt web access.
- stimulate the use of history of science and technology in decision-making on public policies, education programmes and public understanding of science as well as in the development of research agendas.

In a unique cross-disciplinary partnership, seed funding from ICSU has been supplemented by additional support from the international parent bodies for Humanities (CIPSH) and Social Sciences (ISSC). This has supported the pilot phase of the project – the establishment of the central web-site, identification of current bibliographies and definition of standard procedures for construction of a user-friendly and searchable information portal.

Human Perceptions and Behaviour in Sustainable Water Use

IUPsyS • IGU

This international, cross-cultural research project seeks to identify the major individual, social, psychological and environmental factors that influence human perception and use of fresh water resources. The knowledge obtained should help national, regional and international policy-makers make informed choices that promote sustainable fresh water use.

In the first phase of the project, which began in 2004, four qualitative pilot field studies were conducted, in France, Italy, India and Mexico. The sites were selected to represent contrasting geographical, climatic, cultural and access conditions more or less favourable to sustainable water management. The results from these preliminary studies have been used to set up the second quantitative phase of the project, which is currently being implemented. Reports on the pilot projects are in preparation and a final report of the complete study will be published in early 2006.

Science

Global Change in Monsoon Asia

IGBP • START • SCOPE

This is a project to undertake integrated regional studies of global change in Monsoon Asia. It is a cooperative effort involving ICSU's Earth System Science Partnership and its established regional networks in East Asia, South Asia and Southeast Asia. The objective is to better understand how human activities are interacting with and altering natural regional variability of the atmospheric, terrestrial, and marine components of the environment.

A series of meetings and working groups were convened to bring together key global change scientists to assess the current state of knowledge and establish a framework for the coordinated implementation of integrated sub-regional or national studies in the Monsoon Asia region. Three books summarizing current knowledge and research priorities on regional aspects of global change in Monsoon Asia are now in preparation.

An international project office for the Monsoon Asia Regional Integrated Studies (MAIRS) programme has been established in Beijing, supported by the Chinese Academy of Sciences and the Chinese Ministry of Science and Technology for an initial period of five years.

Inter American Workshop on Access to Environmental Data

CODATA • Brazil • USA • DIVERSITAS

The Inter-American Workshop on Access to Environmental Data was hosted by the Brazilian Reference Centre on Environmental Information (CRIA) in March in Campinas, São Paulo, Brazil. It was co-sponsored with the Brazilian Academy of Sciences, Fundação de Amparo à Pesquisa do Estado de São Paulo, and the U.S. National Science Foundation.

The aim was to bring together scientists, data managers, and representatives of research institutions and the policy community from the region, who do not normally interact, to focus on the following issues:

- Scientific, technical, and institutional aspects of data access practices and policies in the environmental sciences, biodiversity studies and related sustainable development research;
- High-priority opportunities and barriers for data access in these research areas; and
- Specific actions that can be taken to improve institutional and national policies, and regional cooperation, with regard to data access.

It brought together more than 70 experts from 48 institutions in 14 countries.



Foresight Analysis

The Foresight Analysis exercise was a broad-based consultation among the ICSU membership, aimed at identifying issues of growing importance to science and society, in which ICSU may have a valuable role to play in the coming years.

For this exercise, all ICSU National Members, Unions, and Interdisciplinary Bodies were invited to respond to three questions:

- what scientific developments do you see taking place in your field over the next 5-10 years that could have a major impact on other disciplines, and that could serve the need of society?
- what kinds of collaboration or coordination are required at the international level in order to ensure these scientific advances are successfully implemented?
- in the light of its mission, what is the unique role that ICSU can play in relation to these developments?

Input was received from over 50 organizations. Based upon an extensive review and discussion of all the responses, the CSPR decided upon a list of topics to be recommended to the ICSU Executive Board as priorities for future ICSU action. This included a complex set of overlapping subjects that were classified into the three broad categories:

- emerging areas of science that are rapidly developing and promise to offer important opportunities for new understanding and application (nanotechnology, molecular biosciences, natural and man-made hazards, complex systems science, cognitive neurosciences).
- integrated studies of the interactions between human activity and the natural environment (global change and sustainable development), including several specific sectors of long-standing concern (water, energy, health, agriculture, and biodiversity).
- cross-cutting issues of interest to all fields of science (data and information; capacity building and investment in basic science; science, ethics, and society).



Working Together



Two New National Members

The admission of two new National Members in 2004 illustrates the diversity of ICSU membership.

Luxembourg is a small scientifically and technologically advanced country and was one of the very few European countries that was not already affiliated to ICSU. Tanzania, on the other hand, is a large developing country from a continent where ICSU is less well represented.

LUXEMBOURG: The National Research Fund (FNR) was established in 1999 to promote R&D activities on a national level and stimulate debate on the orientation of national R&D policies. In addition, the FNR seeks to enhance existing scientific competence, promote new competence and knowledge, and develop synergies between national and international R&D activities in Luxembourg. The FNR promotes Luxembourg's participation in international R&D cooperation programmes.

TANZANIA: The Tanzania Commission for Science and Technology (COSTECH) is a parastatal organization with the responsibility of coordinating and promoting research and technology development activities in the country. It is the chief advisor to the Government on all matters pertaining to science and technology and their application to the socioeconomic development of the country.

Meeting of the International Scientific Unions

25 of the 27 ICSU Unions were represented at the biennial Unions' meeting, hosted by the Académie des Science in Paris, in February 2004.

The meeting was organized to coincide with an Executive Board meeting to allow Union Presidents and Secretaries General to interact with their elected ICSU representatives. It was opened by Claudie Haigneré, the French Minister for Research and Technology, and Walter Erdelen, Assistant Director General for Natural Sciences at UNESCO.

Discussions focused, *inter alia*, on: development of the ICSU strategy and the activities underway feeding into this; ICSU-UNESCO relations and strengthening interactions between the organizations; interactions between ICSU and the Unions and National Members and how to improve these, and interaction with the new ICSU Regional Offices. The meeting also heard reports of two inter-Union activities: Science for Health and Well-Being, and the Food Chain.

Executive Board meets with the Academy of Sciences for the Developing World

The ICSU Executive Board meeting in November was held at the International Centre for Theoretical Physics (ICTP) in Trieste, Italy.

This included a joint session with the Council of one of ICSU's most valuable institutional partners, the Academy of Sciences for the Developing World (TWAS), and the Director of the ICTP. Topics for discussion included sustainable development, capacity building and regional structures. Common interests and actions were identified in each of these areas.



New ICSU Regional Office

for Africa

A very significant milestone in the development of ICSU was achieved in October, when an agreement was signed with the National Research Foundation (NRF) of South Africa to establish an ICSU Regional Office for Africa in Pretoria.

The signing took place during the first ICSU Regional Meeting for Africa, which was hosted by the Research Council of Zimbabwe in Harare. This meeting to discuss regional priorities was attended by 19 African countries, as well as many International Scientific Unions and Interdisciplinary Bodies and representatives of key partner organisations – UNESCO, the African Academy of Sciences and the Academy of Sciences for the Developing World (TWAS).

The Regional Office will have its own full-time Executive Director and several dedicated staff. It will be responsible for the promotion of increased participation of scientists from Sub-Saharan Africa in ICSU programmes and activities. It will also assist ICSU and its Unions in their strategic planning to ensure that African priorities are taken into account in setting international research agendas. Through collaboration with the international scientific community, the Office will contribute to capacity building for African science. It will promote networking and support already existing networks active in the region.

In order to help and advise the Regional Office in carrying out its role, an ICSU Regional Committee of leading African scientists has also been established. This is chaired by Professor Gabriel Ogunmola from Nigeria. One of the first tasks of the committee was to provide input to the Commission on Africa, which was established by the UK Government to inform international policies towards aid for Africa.

Negotiations are proceeding well to establish further ICSU Regional Offices in 2005. These will be based in the Arab Region, Asia and the Pacific, and Latin America and the Caribbean.

Reaching Out

New ICSU Websites

A new ICSU website was launched at the beginning of 2004 featuring a completely redesigned graphic profile and architecture. It provides easy access to the latest information on all of ICSU's ongoing activities and an entrance into the world of the ICSU family.

Communication and international information exchange are at the very core of ICSU's operations. Regularly up-dated information is provided in specific categories:

RESOURCE CENTRE: a structured and referenced on-line library of ICSU documents and statements.

ICSU IN SCIENCE: presenting ICSU initiatives and other activities in relation to specific scientific themes - sustainable development, capacity building, data and information.

THE "MEMBER ZONE: the privileged area of communication for the Members and, for example, facilitates consultation on the developing ICSU strategy

TEACHING SCIENCE PORTAL: providing a wealth of information on science education programmes and the capacity building activities of ICSU member organizations.

CALENDAR OF EVENTS: where ICSU National Members, International Scientific Unions and Interdisciplinary Bodies can publicize their major events.

An RSS (Really Simple Syndication) facility enables users to register and be automatically alerted when new information is posted on topics of interest.

A dedicated website for the new ICSU Regional Office for Africa is also being developed.

ICSU Insight: facilitating communication

As a complement to the websites a new version of "ICSU Insight", the Council's electronic newsletter was launched in 2004.

This publication contains brief highlights of key developments with links to further information on the web.

ICSU Insight is published every three months and distributed to all members and registered individuals. Since April 2004, the audience has doubled, reaching over 1200 registered readers. So, if you haven't already done so, please register at www.icsu.org to receive Insight online.



“Adherence to the Principle of Universality is critical if the international scientific community wants to continue to meet and exchange freely.”

*Dr Peter Warren,
Chair, Standing Committee on Freedom in the Conduct of Science*

Safeguarding Universality

VISAS: In accordance the Principle of Universality, ICSU opposes any discrimination on the basis of such factors as citizenship, religion, creed, political stance, ethnic origin, race, colour, language, age or gender.

In July 2004, the ICSU President Jane Lubchenco wrote to G.H. Atkinson, Science and Technology Advisor US Department of State. She expressed the grave concerns of the international science community with regard to the excessive obstacles and extended delays on visa applications, for scientists from certain countries wishing to enter the USA.

Whilst acknowledging the legitimate security interests of all countries, it was stressed that the prevailing US visa practices were likely to be detrimental to both US and international science. This communication prompted a formal response from the US State Department that was very encouraging - clearly acknowledging the problem and outlining a number of positive steps that have since been taken, to ameliorate the situation.

ICSU will continue to work with its Members to monitor progress on reducing visa restrictions for scientists.

INTERNATIONAL MEETINGS: Over the past two years, there have been a number of calls from various quarters for scientific boycotts against certain countries or institutions for ostensibly political reasons. In response to these issues, the ICSU President, Jane Lubchenco and President-elect, Goverdhan Mehta, co-authored an editorial, in the journal *Science* in September (*Science* 305, 1531).

The strong message to all those with an interest in science is that adherence to the Principle of Universality is critical if the international scientific community wants to continue to meet and exchange freely.

The Universality of Science

in a changing world

The Principle of the Universality of Science

Progress in science is made through the worldwide exchange of ideas, information, data, and materials, and the understanding of the work of others. Science is a co-operative exercise that thrives on open international interaction and exchange. It transcends national boundaries. In this sense, science is universal and when this universality is infringed or impeded it can have serious consequences for science and for society more broadly.

The essential elements of the Principle of the Universality of Science, as defined in ICSU's statute 5, are non-discrimination and equity. In accordance with this principle, all scientists should have the possibility to participate, without discrimination and on an equitable basis, in legitimate scientific activities, whether they be conducted in a national, transnational or international context.

Freedom in the Conduct of Science

The Standing Committee on Freedom in the Conduct of Science was created by ICSU in 1963 to oversee the Principle of Universality and, in particular, to assist individual scientists who had problems obtaining visas for international meetings. Recognizing that in the intervening period many changes had taken place, the committee was charged by the ICSU General Assembly in 2002 with carrying out a review of the Principle of Universality. On the basis of this review, the Executive Board issued a briefing document – *Universality of Science in a Changing World* (December, 2004), which outlines the major challenges to Universality in today's world. These include: visa restrictions and delays; discrimination or repression of scientists for political reasons, and; various other restrictions, restraints and limitations on normal scientific practice including exchange of information and materials. Many of these challenges have been exasperated by concerns about international terrorism and national security.

ICSU Secretariat



Executive

Thomas Rosswall
Executive Director

Carthage Smith
Deputy Executive Director

Tish Bahmani Fard
Assistant Executive Director

Environment and Sustainable Development

Leah Goldfarb
Science Officer

Gisbert Glaser
Senior Advisor

Elisabeth Merle
Administrative Officer

Scientific Planning and Special Projects

Laurie Geller
Science Officer

Rohini Rao
Administrative Officer

Communication and Information Technology

Mustapha Mokrane
IT Officer / Webmaster

Mary Galambert (until July 2004)
Science Communication Officer

Administrative Staff

Miiko Anderson (until Sept. 2004)
Administrative Assistant

Maureen Brennan
Administrative Officer, Membership

Eric Leparmentier
General Services

Natacha de Marchi
Accountant

Executive Board

Officers

Jane Lubchenco
President

Goverdhan Mehta
President-elect

Hiroyuki Yoshikawa (until March 2004)
Past-President

David Parry
Vice-President for Scientific Planning and Review

Peter Tyson
Vice President for External Relations

Ana María Cetto
Secretary-General

Roger Elliott
Treasurer

Ordinary members

Giovanni Berlucchi (IBRO)

Robin Brett (IUGS)

Michel Denis (IUPsyS)

Burton Richter (IUPAP)

Hernan Chaimovich (Brazil)

Marie-Lise Chanin (France)

Francis Gudyanga (Zimbabwe)

Lucie Lapointe (Canada)



In addition to overseeing the operations of ICSU, the Executive Board provides advice and direction on priorities to the General Assembly, taking into consideration the recommendations of the appropriate Committees. The Executive Board also implements and communicates ICSU's policies and views between General Assemblies.

National Members

Argentina	Finland	Madagascar*	Spain
Armenia**	France	Malaysia	Sri Lanka
Australia	Georgia*	Mexico	Sudan**
Austria	Germany	Moldova**	Swaziland**
Azerbaijan**	Ghana	Monaco	Sweden
Bangladesh*	Greece	Mongolia	Switzerland
Belarus**	Guatemala*	Morocco	Tajikistan**
Belgium	Hungary	Mozambique*	Tanzania
Bolivia**	India	Nepal	Thailand
Brazil	Indonesia	Netherlands	Togo**
Bulgaria	Iran**	New Zealand	Tunisia*
Burkina Faso*	Iraq	Nigeria	Turkey
Cameroon*	Ireland	Norway	Uganda*
Canada	Israel	Pakistan	Ukraine
Caribbean*	Italy	Panama**	United Kingdom
Chile	Jamaica**	Peru	USA
China: CAST	Japan	Philippines	Uruguay**
China: Taipei	Jordan*	Poland	Uzbekistan**
Colombia	Kazakhstan*	Portugal	Vatican City State
Costa Rica**	Kenya	Romania	Venezuela**
Côte d'Ivoire*	Korea (DPR) **	Russia	Vietnam**
Croatia	Korea, Rep. of	Saudi Arabia	Zimbabwe
Cuba	Latvia	Senegal*	
Czech Republic	Lebanon	Seychelles*	*Associates
Denmark	Lithuania	Singapore	**Observers
Egypt**	Luxembourg	Slovak Republic	
Estonia	Macedonia	South Africa	

ICSU's **National Members** provide input from a national, multi-disciplinary perspective on priority areas for future ICSU activities. They also play an important role in facilitating links with national governments and science agencies. The majority of ICSU National Members are scientific academies, although some are national funding agencies or other nationally representative science bodies.

Scientific Associates

Academia de Ciencias de America Latina (ACAL)
Academy of Sciences for the Developing World (TWAS)
Engineering Committee on Oceanic Resources (ECOR)
Federation of Asian Scientific Academies and Societies (FASAS)
International Arctic Science Committee (IASC)
International Association of Hydraulic Engineering and Research (IAHR)
International Cartographic Association (ICA)
International Cell Research Organization (ICRO)
International Council for Laboratory Animal Science (ICLAS)
International Council for Scientific and Technical Information (ICSTI)
International Federation for Information Processing (IFIP)
International Federation of Library Associations and Institutions (IFLA)
International Federation of Science Editors (IFSE)
International Federation of Societies for Microscopy (IFSM)
International Federation of Surveyors (FIG)
International Foundation for Science (IFS)
International Institute for Applied Systems Analysis (IIASA)
International Radiation Protection Association (IRPA)
International Society of Endocrinology (ISE)
International Union for Quaternary Research (INQUA)
International Union for Vacuum Science, Technique and Applications (IUVSTA)
International Union of Forest Research Organizations (IUFRO)
International Water Association (IWA)
Pacific Science Association (PSA)

The **Scientific Associates** bring their own particular perspectives to ICSU's activities. For example, the Academy of Sciences for the Developing World (TWAS) is a key partner in defining ICSU's strategy for science in developing countries.

ICSU Members

Scientific Unions

International Astronomical Union (IAU)
International Brain Research Organization (IBRO)
International Geographical Union (IGU)
International Mathematical Union (IMU)
International Society for Photogrammetry and Remote Sensing (ISPRS)
International Union for Physical and Engineering Sciences in Medicine (IUPESM)
International Union for Pure and Applied Biophysics (IUPAB)
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 Geodesy and Geophysics (IUGG)
International Union of Geological Sciences (IUGS)
International Union of History and Philosophy of Science (IUHPS)
International Union of Immunological Societies (IUIS)
International Union of Microbiological Societies (IUMS)
International Union of Nutritional Sciences (IUNS)
International Union of Pharmacology (IUPHAR)
International Union of Physiological Sciences (IUPS)
International Union of Psychological Sciences (IUPsyS)
International Union of Pure and Applied Chemistry (IUPAC)
International Union of Pure and Applied Physics (IUPAP)
International Union of Soil Sciences (IUSS)
International Union of Theoretical and Applied Mechanics (IUTAM)
International Union of Toxicology (IUTOX)
Union Radio-Scientifique Internationale (URSI)

*ICSU **Union Members** provide scientific expertise and input on priority issues from an international, disciplinary perspective. Union Members play an essential role as representatives of the wider scientific community.*

Interdisciplinary Bodies

ASSESSMENT BODIES

Millennium Ecosystem Assessment (MA)
Scientific Committee on Problems of the Environment (SCOPE)

THEMATIC BODIES

Committee on Space Research (COSPAR)
Scientific Committee on Antarctic Research (SCAR)
Scientific Committee on the Lithosphere (SCL)
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 System (IGOS)

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)

*ICSU **Interdisciplinary Bodies** focus on specific areas of international research. Their roles usually combine both operational and policy/advisory functions. Several are jointly sponsored by ICSU and other international organizations.*

Financial Summary

Statement of income and expenditure

International Council for Science (ICSU) for the period
1 January 2004 to 31 December 2004

	Euros
Income	
Membership dues	
National Members & Scientific Unions	1 628 445
Scientific Associates	7 337
Cancellation Provision Arrears	95 526
Membership dues for WCRP	199 480
Grants from	
UNESCO	154 145
US NAS	360 226
NSF	439 183
Other foundations	62 430
Other income	156 920
Investment income	180 543
Total income	3 284 236
Expenditure	
Policy committees	148 197
Joint initiatives	657 359
Grant programme	679 897
New initiatives	207 193
Governance meetings	102 324
Policy & administrative support	1 681 569
Contingency/Provision	6 512
Other expenses	375 256
Investment charges	94 922
Total expenditure	3 953 228
Excess of expenditure over income *	- 668 992

* The general fund has been used to cover the deficit

Balance sheet

International Council for Science (ICSU) for the period
1 January 2004 to 31 December 2004

	Euros
Assets	
Bank & cash balances	2 246 997
Marketable securities	207 652
UNESCO subvention	44 220
Sundry debtors & prepayments	337 465
Fixed assets	42 351
Total assets	2 878 685
Liabilities	
Interdisciplinary Bodies	30 081
Sundry creditors & accruals	534 856
Provision	173 737
General fund	1 309 004
Mandatory reserve	1 500 000
Total liabilities	3 547 677
Net Result	- 668 992

ICSU's principal source of "core" income is Member dues. The other major sources of income are grants from various organizations and Foundations, including a contribution from UNESCO. As well as supporting the Secretariat and the various Policy and Advisory Committees, a proportion of this income is returned to members via a competitive grants scheme.

The General Assembly approves draft budgetary outlines for each ensuing triennium upon proposals received from the Executive Board, which is charged with finalizing the annual budgets. The Executive Board is also responsible for the examination and approval of the audited accounts of ICSU.

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."

Mission Statement

In order to strengthen international science for the benefit of society, 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.



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