Strengthening international science for the benefit of society

Celebrating 75 years: 1931-2006

ICSU
International Council for Science

About ICSU

Founded in 1931, the International Council for Science (ICSU; the name was changed from the International Council of Scientific Unions in 1998, but the acronym has been maintained) is a non-governmental organization representing a global membership that includes both National Scientific Bodies (currently 104 Members) and International Scientific Unions (29 Members). Through this international network, ICSU plans and coordinates interdisciplinary research to address major issues of relevance to both science and society. To this end, a number of specialized Interdisciplinary Bodies have been created. In addition, the Council actively advocates for freedom in the conduct of science, promotes equitable access to scientific data and information, and facilitates science education and capacity building.

ICSU 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. The Council acts as a focus for the exchange of ideas, the communication of scientific information and the development of scientific standards. It is frequently called upon to speak on behalf of the global scientific community and to act as an advisor in matters ranging from the environment to scientific ethics. The ICSU community organizes scientific conferences, congresses and symposia all around the world and also produces a wide range of newsletters, handbooks, learned journals and proceedings.

One of the strengths of ICSU is its governance structure, which has developed over time to ensure transparency and accountability, with a minimum of bureaucracy. The central ICSU Secretariat is based in Paris, where a small professional team (12 people in 2006), ensures its day to day planning and operations, under the guidance of an Executive Board. The Board is made up of 14 scientists, representing different countries and disciplines, elected by the General Assembly of all Members, which is convened every three years. A small number of Policy Committees assist the Executive Board in its work. ICSU's activities depend to a large extent on the voluntary contributions of scientists from around the world who are brought together in these Policy Committees or in various *ad hoc* expert groups.

In addition to the central Secretariat, four ICSU Regional Offices are being developed, each with its own dedicated staff and scientific advisory committee. The aim of these Offices is to help ICSU strengthen science for society in developing countries.

Strategic vision

The long-term ICSU strategic vision is for a world where science is used for 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).

ICSU's contribution to strengthening international science for the benefit of society is focused in three overlapping areas:

- ***International research collaboration***
- ***Science for policy***
- ***Universality of science***

This brochure summarizes key priorities in each of these areas and provides a few examples of specific activities to illustrate how ICSU operates. A more comprehensive account of these and many other activities can be found at www.icsu.org

ICSU in action...

Global Environmental Change

ICSU has played a leading role in international research on environmental change since the establishment of the Global Atmospheric Research Programme in 1967. This programme was jointly developed with the World Meteorological Organization, as was its successor – the World Climate Research Programme, which continues to this day and focuses on the physical forces driving the earth's climate. In 1986, the importance of biological systems in planetary processes was recognized by ICSU with the establishment of the International Geosphere-Biosphere Programme. As the science expanded, two further programmes on biodiversity and the human dimensions of environmental change were launched in the 1990s.

Between them, these four ICSU-sponsored programmes promote, coordinate and integrate over 2 billion euros of research in the majority of nations across the world. They provide the scientific basis for major international assessments and conventions pertinent to environmental protection and sustainable development, including, for example, the work of the Intergovernmental Panel on Climate Change (IPCC).

Environmental Hazards and Disasters

ICSU was an active participant in the UN-led International Decade for Natural Disaster Reduction (1990-1999) and developed several important research projects on topics ranging from droughts to tropical cyclones. However, increased understanding of the underlying causes of individual hazards is frequently not reflected in the effectiveness of society to prevent and mitigate the disastrous human and economic costs of these events. There is a major challenge for the scientific community to develop a truly global and interdisciplinary approach to research on how to prevent hazards from turning into disasters.

As part of ICSU's overall Strategic Plan, the General Assembly in 2005 directed ICSU to begin the planning for a new programme on Natural and Human-induced Environmental Hazards and Disasters. In the first instance, an *ad hoc* Scoping Group has identified a number of significant research gaps that bridge different disciplines, including geological, ecological, social and economic sciences. A Planning Committee has been established and the necessary links are being made with other key multinational agencies to develop an international research framework that will address the needs of policy makers and society more widely.

International Polar Year, 2007-2008

Fifty years ago, ICSU sponsored the International Geophysical Year and established a new paradigm for international collaboration in the earth sciences. Scientists across the world are now gearing up for the International Polar Year (IPY) 2007-2008. IPY is an interdisciplinary and internationally coordinated research campaign, that is expected to mark a quantum leap in understanding of the Polar regions and their significance for the Earth's climate, ecosystems and societies.

The Framework for the IPY was developed by an ICSU Planning Group, in consultation with the international science community and was formally adopted by the ICSU General Assembly in 2005. The Year itself will be co-sponsored by ICSU and the World Meteorological Organization and a dedicated Programme Office has been set up to coordinate the hundreds of millions of euros of research that will be conducted under the IPY banner.

International research collaboration

ICSU plans and coordinates major programmes in key areas:

- **Global Environmental Change**
- **Monitoring and Observation**
- **Data and Information**

ICSU Interdisciplinary Bodies address various themes from the oceans to solar-terrestrial physics

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The Strategic Plan 2006-2011 includes a number of major new interdisciplinary initiatives:

- *International Polar Year 2007-2008*
- *Natural and Human-induced Hazards*
- *Sustainable Development*
- *Human Health and Wellbeing*
- *Sustainable Energy*
- *Science Foresight*

ICSU in action...

World Summit on Sustainable Development

Sustainable development is one of the most daunting challenges that humanity has ever faced. At all scales, from local to global, scientific knowledge can help provide guidance and new solutions to the economic, social and environmental problems that make development paths unsustainable. The importance of science in this context is clearly recognized in the Plan of Action that was agreed by Governments at the World Summit on Sustainable Development (WSSD) in 2002.

ICSU represented the international science community at the WSSD. This included the publication of a series of reports on the role of science in relation to different aspects of sustainable development, ranging from biotechnology to the resilience of ecological and social systems. It also included, working with partners to organize preparatory events and a Forum on Science, Technology and Innovation. ICSU continues to work with various governmental and non-governmental partners to implement the WSSD Plan of Action as it relates to science.

UN Commission on Sustainable Development

As part of the follow-up to the World Summit on Sustainable Development, ICSU continues to represent science at the Commission on Sustainable Development. The Commission convenes annual meetings that bring together governments, UN bodies, the private sector and key sectors of civil society to discuss specific topics relating to sustainable development. It provides a valuable forum for communicating scientific information to policy-makers and developing a needs-based multi-stakeholder research agenda for sustainable development.

ICSU works with key partners to develop papers as formal input to the Commission process and organizes international delegations of scientific experts to contribute to the meeting dialogues and side-events.

Global Earth Observation

Monitoring of the Earth system is required in order to detect, attribute and understand change. Improved monitoring should reduce uncertainties in model predications and enable more accurate assessment of future implications. Observations from a variety of sources, including orbiting space satellites, ground based monitoring stations and floating buoys, provide the quantitative basis for much of the research that is done on environmental change and sustainable development.

Global monitoring is a key link in the chain connecting interdisciplinary research to scientific assessments and policy making. ICSU played a critical role, together with various UN bodies, in the establishment of the three global observing systems with their focus on the climate (1991) oceans (1993) and land (1996). The Council is also a partner in the strategic body that sets the scientific priorities for these systems.

At the first Earth Observation Summit in 2003, several governments launched a new initiative to develop an implementation plan for an integrated Global Earth Observation System of Systems and ICSU is acting as the voice of the international scientific community in this process. This includes active representation in a number of working groups.

Science for policy

ICSU seeks to ensure that science is integrated into international policy development and that relevant policies take into account both scientific knowledge and the needs of science

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ICSU works at the intersection of science and policy. It promotes dialogue and shared understanding between the scientific community, policy makers and society. ICSU represents the science community in important intergovernmental fora:

- *World Summit on Sustainable Development*
- *World Summit on the Information Society*
- *UN Commission on Sustainable Development*
- *Earth Observation Summits*

ICSU in action...

The Principle of the Universality of Science

The Principle of the Universality of Science embodies freedom of movement, association, expression and communication for scientists as well as equitable access to data, information and research materials. Adherence to the Principle is a condition of membership to ICSU.

A dedicated Standing Committee on Freedom in the Conduct of Science has served as the guardian of the Principle. This Committee played a particularly important role during the 'Cold War' period in resolving visa problems for individual scientists and ensuring the scientific exchange between East and West.

However, with a changing international political picture, the widening gap between rich and poor countries and concerns about international terrorism and national security, the challenges to Universality are different today to those of the past. Reflecting on this, the General Assembly in 2005 decided to establish a new committee on Freedom and Responsibilities in Science.

Data and Information

The flow of scientific data and information is one of the most critical factors in ensuring the participation of scientists in international research. The nature and use of scientific data and information, the conditions under which they are produced, distributed and managed and the role of scientists and other actors in these processes have been changing rapidly in recent years. ICSU has established several interdisciplinary initiatives that address different aspects of this changing panorama.

The International Network for the Availability of Scientific Publications was created in 1992 and enables affordable on-line access to scientific journals for many thousands of scientists in the developing world. A number of other ICSU bodies are working at both an operational and policy level to improve the quality and accessibility of various types of scientific data. These Interdisciplinary Bodies are central to the Council's efforts to facilitate a coordinated global approach that ensures equitable access to quality data and information for research, education and informed decision-making.

Regional Offices

As the move towards a global knowledge society accelerates, it becomes increasingly important for all countries to have a thriving scientific community that contributes to national and international research. In 2002, ICSU agreed to establish four Regional Offices to: i) facilitate the increased participation of scientists from developing countries in the activities of ICSU and its Members, and ii) ensure that the ICSU strategy and activities are responsive to the needs of developing countries.

The first ICSU Regional Office in Pretoria, South Africa was inaugurated in 2005. A second office, to serve the Asia and Pacific Region, was agreed in 2006 and is located in Kuala Lumpur, Malaysia. The Office for Latin American and the Caribbean is to be located in Rio de Janeiro, Brazil. Each of these offices has generous support from the host country, including dedicated scientific and administrative staff and their activities are overseen by a regional scientific committee. A similar facility is planned for the Arab Region.

The universality of science

The Principle of the Universality of Science is embodied in ICSU's statutes: "The practice of science should be equitable and without discrimination."

A primary aim of ICSU is to enhance the pluralism of science and reach out to all countries, by:

- *Ensuring that scientists can freely associate and communicate*
- *Providing equitable access to data and information*
- *Enabling equitable access to research materials and facilities*
- *Building scientific capacity*
- *Bringing nations and disciplines together*

ICSU Membership

National Unions

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

List includes full Members, Scientific Associates, and Observers***

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 for Quaternary Research (INQUA)
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 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 International (URSI)

ICSU Interdisciplinary Bodies and Joint Initiatives

ASSESSMENT BODIES

- Scientific Committee on Problems of the Environment (SCOPE)

THEMATIC BODIES

- Committee on Space Research (COSPAR)
- 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 (with UNESCO, IUBS, IUMS, and SCOPE)
- International Geosphere-Biosphere Programme (IGBP)
- International Human Dimensions Programme on Global Environmental Change (IHDP, with ISSC)
- World Climate Research Programme (WCRP, with IOC of UNESCO and WMO)

MONITORING/OBSERVATION BODIES

- Global Climate Observing System (GCOS, with WMO, IOC, FAO,and UNEP)
- Global Ocean Observing System (GOOS, with WMO, UNEP and IOC)
- Global Terrestrial Observing System (GTOS, with FAO, UNEP, UNESCO and WMO)
- Integrated Global Observing Strategy Partnership (IGOS-P, with many other institutional partners)

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)

Photo credits:
'International research collaboration': IRD: Patrick Wagnon (climatology); US Geological Service (volcano); British Antarctic Survey (research station). 'Universality of science': IRD, Alain Brauman (students); CNRS, Christophe Lebedinsky (blackboard). Dexx (female scientist). All other photos: Getty Images

Mission statement

ICSU mobilizes the knowledge and resources of the international science community for the benefit of society, 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 in the international scientific endeavour, regardless of race, citizenship, language, political stance, or gender

Provide independent, authoritative advice to stimulate constructive dialogue between the scientific community and governments, civil society, and the private sector.

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