



ICCSU

International Council for Science

strengthening international science for the benefit of society

ICCSU and the Universality of Science: 1957 -2006 and beyond

From SCFCS to SciDIF

CRS, ROS and

Celebrating 75 years: 1931-2006

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Promoting and Safeguarding Universality

From its earliest days, ICSU has stood for the universality of science. This is enshrined in the statutes, to which all ICSU Members are required to subscribe. The relevant statute 5 defines universality of science as embodying 'freedom of movement, association, expression and communication for scientists as well as equitable access to data, information and research materials', and as opposing 'any discrimination on the basis of such factors as ethnic origin, religion, citizenship, language, political stance, gender, sex or age'. All activities under the ICSU aegis have to conform to this principle, and ICSU Members are strongly encouraged to apply the principle to their own initiatives. It is a clear and direct way of promoting the widest possible participation in science.

ICSU's commitment to universality stems in part from the conviction that science is a common human endeavour that transcends national boundaries and is to be shared by all people, and in part from the very practical consideration that progress in science is best effected through the worldwide exchange of ideas, information, data, materials, and understanding of the work of others.

Given its status as the representative body of the international and interdisciplinary scientific community, ICSU focuses its efforts on three over-lapping aspects of universality:

- The Principle of Universality and freedom and responsibility in science;
- Access to scientific data and information
- Strengthening science in developing countries

Freedom in the Conduct of Science (*SCFCS to CFRS*)

In 1958, the General Assembly of ICSU, endorsed what had up until then been implicit but not explicit in the Council's operations, when it voted a policy resolution on political non-discrimination, which subsequently evolved into statute 5 as it reads today. Then, in 1963, a dedicated Standing Committee on the Free Circulation of Scientists (SCFCS) was established to safeguard the Principle of Universality as stipulated in statute 5. This subsequently evolved into the Standing Committee on Freedom in the Conduct of Science, whose members have included many respected and well-known scientists, all of whom have devoted many hours of their time because of their belief in the importance of universality.

The SCFCS has worked over several decades, and largely without publicity, to ensure that *bona fide* scientists are not prevented from participating in international scientific meetings for political reasons – an issue that can surface in, for example, the granting or withholding of an entry visa to nationals of certain countries. During periods of international tension, such as the Cold War or the apartheid era in South Africa, the committee has been particularly active on visa issues and has successfully resolved hundreds of individual cases. In addition, it has taken up the cause of a number of individual scientists who have been imprisoned or tortured because of their profession.

The future

With a changing international political picture, economic globalisation, the widening gap between rich and poor countries and concerns about international terrorism and national security, the challenges to freedom and responsibility in science are different today to those of the past. These changes formed the backdrop for an ICSU strategic review, *Science and Society: Rights and Responsibilities* that was published in 2005 and recommended that the SCFCS be replaced by a new Committee on Freedom and Responsibility in the conduct of Science (CFRS). This committee will have a broader remit than its erstwhile predecessor. In addition to providing advice and assistance for individual scientists, it will play an active role in promoting the universality of science and associated responsibilities of scientists. Working with National Members and International Unions, it will actively monitor threats to the international exchange of science and scientists and advise on appropriate policies and actions.

Access to scientific data and information (*FAGS to SciDIF*)

Scientific data and information are the life-blood of the scientific process. Access to the latest data and information is the rate-limiting step for many scientific activities and is a particular challenge for developing countries.

In 1957-58, ICSU sponsored the International Geophysical Year (IGY) which was the largest international field research programme ever undertaken. The data and information coordination and management requirements for the IGY, were far beyond anything previously experienced and necessitated the development of new structures. Two new Interdisciplinary Bodies of ICSU were established specifically to meet the needs of IGY and ensure the full, open and long-term availability of the data and information coming out of this unique international research effort. The Federation of Astronomical and Geophysical Services (FAGS) and the World Data Centre (WDC) system are both networks of national centres. They continue to function to this day and many of the original services and centres continue to provide open access to data and information on which many scientists depend. Over time, new facilities have also been incorporated into these networks.

In 1966, the General Assembly recognised that many of the issues relating to scientific data are common to very disparate fields of research and cut across multiple disciplines. A new ICSU Interdisciplinary Body, the Committee on Data for Science and Technology (CODATA) was established to facilitate international cross-disciplinary cooperation on data and information issues. This committee has had an important influence on data management practices in several areas and on international policies and mechanisms to promote full and open access. Most recently, ICSU and CODATA, in partnership with several other international science bodies provided substantive input to the World Summit on the Information Society (WSIS, Geneva, 2002 and Tunis, 2005). The principal focus of this Summit was the use of information and communication technologies to address the digital divide between richer and poorer countries. In this context, ICSU was instrumental in ensuring that mechanisms to enable universal access to scientific knowledge were high on the agenda; science has a prominent place in the formal declarations and plan of action that governments signed up to at the Summit.

The ICSU Press, was created as the publishing house of ICSU in 1983 and, as publishing practices changed, with the major shift from paper-based to electronic media, it evolved into the advisory Committee on the Dissemination of Scientific Information. This committee organised several important international meetings on scientific information needs and new publishing practices. And it was as a result of one of these that the International Network for the Availability of Scientific Publications was created, in 1992, in partnership with UNESCO and the Academy of Sciences for the Developing World. INASP, which is one of the newest Interdisciplinary Bodies of ICSU, has a goal of improving worldwide access to scientific information. In just over a decade, it has established a network of over 3000 partners, including publishers, librarians, science managers and academics in the developing world. It responds to requests for assistance on all aspects of scientific literature publication, access and dissemination, and it assists development and funding agencies in the establishment and implementation of information-related programmes in low-income countries. Although its original focus was on the compilation of directories and provision of scientific publications at affordable cost, mainly from the North to the South, it has extended its work considerably beyond these initial activities. Its activities are needs-driven, with priorities being set by scientific communities in low-income countries. This has led to an increasing emphasis on training in the use of information and communication technologies and to the development of local publishing capacity using electronic media.

The future

Massive increases in computing capacity, together with the www and internet, have revolutionised science over the past decade. At the same time there is a growing digital divide in science between those who do have on-line access to data and information and those who do not, between poorer countries or institutions and their richer counterparts. In 2004, ICSU carried out a detailed international assessment of the future needs and priorities for scientific data and information¹. This assessment sets out over 50 specific recommendations and concludes that there is an urgent need for a coordinated global approach aimed at providing universal and equitable access to quality data and information. Achieving this will require some restructuring and re-focusing of existing ICSU structures, as well as the development of new systems, mechanisms and policies. The General Assembly in 2005 requested that ICSU convene a Scientific Data and Information Forum (SciDIF) for all the key stakeholders as part of the planning for an international framework for scientific data and information

¹ Scientific Data and Information . A report of the CSPR Assessment Panel. ICSU 2004, 42pp

What is an ICSU Interdisciplinary Body and how are they supported?

Interdisciplinary Bodies focus on specific areas of international science that are of interest to all or many ICSU Members. Initially established by the ICSU General Assembly, these bodies may be incubated by ICSU for a limited period but are designed to become self-sufficient and independent in terms of day-to-day operations and financing. Several of them are designated as Joint Initiatives, when they are co-sponsored by other organisations. Their roles vary depending on the area of science and the related needs of the international science community, but usually combine operational and policy/advisory functions. Most Interdisciplinary Bodies have their own secretariat and some have their own membership and national committee structures. Several have outgrown ICSU, in terms of their annual budgets, although they all remain closely linked to their parent organisation via their statutes. ICSU retains overall responsibility for reviewing, and ultimately disbanding, its own Interdisciplinary Bodies.

There are a total of 19 Interdisciplinary Bodies (2006) that fall into five major categories: Global Environmental Change Programmes; Monitoring and Observation Bodies; Assessment Bodies; Data and Information Bodies; and, Thematic Bodies.

Capacity building and Developing Countries (*COSTED to Regional Offices*)

As an international organisation, ICSU by its very existence creates opportunities for scientists from all countries to work together and share their knowledge and expertise. But ICSU also has an explicit commitment to helping the scientifically less developed countries build up their scientific resources. Such capacity building lies at the heart of promoting participation and universality in science. ICSU's Strategic Plan 2006-2011 pledges to integrate capacity building into the development of all new initiatives.

Many members of the ICSU community share this commitment in their own contexts, as do many of ICSU's interdisciplinary research programmes. For example, ICSU's Global Environmental Change bodies launched the START programme in 1992, specifically to foster regional networks of collaborating scientists and institutions in developing countries. Capacity building is central to the START agenda, and takes the form not only of joint research projects but also of a series of fellowships and training workshops. In a powerful illustration of leverage, financial and related support for START now comes from over 50 organisations. Its activities are key to building the scientific capacity that is necessary to understand environmental change at the regional and local scale and feed this into the global analyses and *vice-versa*.

In addition to its various scientific programmes, ICSU has established dedicated structures to address the issue of capacity building in developing countries. At the same time as CODATA was being created in 1966, the General Assembly approved a new Committee on Science and Technology in Developing Countries (COSTED). This developed into a substantive structure in 1983, when the government of India generously provided resources for a secretariat building with supporting staff and facilities in Chennai. This central activity was linked to regional hubs in other regions, which organised workshops and built research networks addressing regionally specific scientific priorities. COSTED-Chennai also produced numerous publications in both hard-copy and electronic form. Again, these addressed priority scientific issues from a developing country

perspective; for example a monthly electronic news service on IPR issues. In areas of common interest, such as the teaching of science, COSTED worked with other ICSU bodies.

In 1993 a dedicated Committee on Capacity Building in Science (CCBS) was established in order to build on the previous activities of the Committee on the Teaching of Science. CCBS focused on enquiry-based, hands-on science education in primary schools. It organised 3 major conferences in Europe, Latin America and Asia, that brought together scientists, science-educators and education-policy experts to discuss education methods. A web-portal (http://www.icsu.org/1_icsuinscience/CAPA_TeachSci_1.html) was developed to provide information on national primary education programmes and enquiry-based teaching tools. These activities have had a major impact on teaching practices in many developing countries, particularly in Asia and Latin America.

The future

Times change as do scientific needs and the requirements to best satisfy those needs. As part of an overall strategic planning exercise both COSTED and CCBS were reviewed, in 2002 and 2005 respectively, and the General Assembly decided to replace these dedicated capacity building structures, with new ICSU Regional Offices. These Offices have a broader remit that includes not only strengthening science in and for developing countries but also ensuring that scientists from those countries fully participate in establishing and implementing the international research agenda. The first Regional Office for Africa (based in Pretoria, S. Africa) was formally established in 2005, followed by a Regional Office for Asia and the Pacific (based in Kuala Lumpur, Malaysia) in 2006. At the time of writing, an agreement is being finalized for a third Office in Brazil, to serve Latin America and the Caribbean. Each of these Offices receives generous support from the host country, has its own dedicated Executive Director and additional staff, and has a Scientific Advisory Committee made up of leading scientists from countries in the region.

In addition to the Regional Offices, a new Policy Committee for Developing Countries has been created to provide strategic vision and advice to ICSU from the perspective of developing countries. Perhaps even more significantly, the General Assembly in 2005 elected 2 Vice-Presidents and a Secretary General from developing countries and the new President (until October, 2008) Goverdhan Mehta, is from India. The perspectives of developing countries will certainly continue to be integrated into the core of ICSU's business for the foreseeable future.

Conclusion

Universality has been embedded in ICSU from the very beginning. Over time various dedicated structures and activities have been instigated to address the major challenges to scientific exclusion: restrictions on scientific freedom; obstacles to access to data and information; shortages of scientific capacity. These challenges are exacerbated in conditions of poverty and in developing countries and so particular efforts need to be devoted to those areas. ICSU has achieved much through its programmatic and dedicated activities in ensuring the inclusion of scientists from all countries in the international research endeavor. Some of these programmes and activities now need to be replaced by new initiatives more appropriate to the changed context for science in the 21st Century. Time will tell whether they are equally, or hopefully even more successful, than their predecessors.



ICSU 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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