INTERNATIONAL COUNCIL FOR SCIENCE

ICSU President Professor Gordon McBean explains the Council’s three main areas of focus and offers his opinion on why they are critical to meeting the challenge posed by the changing nature of science in the modern world.

SIR PETER GLUCKMAN, Chief Science Advisor to the Prime Minister of New Zealand, is working with the International Council for Science (ICSU) and national science advisors to better understand some of the key issues faced by science. In a presentation to the Council’s General Assembly in September 2014 – ‘The changing nature of science; can scientists rise to the challenge?’ – he noted two recurring and interrelated themes.

First is the changing nature of the science system globally, and the not necessarily obvious but ultimately very disruptive transformations underway. One example is the move to interdisciplinarity – something that we are still not good at doing, assessing and promoting. Our Future Earth: Research for Global Sustainability programme relies on an interdisciplinary, transformative approach and yet the traditional structures of our universities, funding councils and reward systems make it difficult.

Second are the concepts of trust and integrity that must be at the core of our work. Our peer-review system is under pressure. As a scientific community, we need to be able to better argue the case for support of science, which means building new metrics and addressing the societal issues that differ around the globe.

Hence, ICSU has three key areas of focus: Science for Policy; International Research Collaboration; and Universality of Science. Together, they provide the basis for achieving our overall mission ‘to strengthen international science for the benefit of society’.

ACTIVE DATA
Data and information are the keys to delivering the benefits of science to society. Through our sponsored research programmes and network of global observing initiatives, policy-relevant science at national, regional and international scales is generated and integrated. We also foster the development of international standards and methodologies that support universal equitable access.

The ICSU World Data System (WDS) was created in 2011 and is a common, globally interoperable, distributed data system that incorporates emerging technologies and new scientific data activities. It complements the work of ICSU’s Committee on Data for Science and Technology (CODATA), which defines data principles and practice; promotes the development of tools, procedures and management protocols for data science; and seeks to reduce the digital divide around open scientific data through capacity building activities in low- and middle-income countries.

MOBILISING INTERNATIONAL SCIENCE
In response to a comprehensive External Review from 2014, ICSU faces a number of key challenges. We need to promote transformative, solutions-orientated approaches for the production and use of scientific knowledge; secure wider recognition as an authoritative, trusted policy advisor; and strengthen public outreach and engagement of science with society. In order to attain these objectives we need a step-change in resource mobilisation for international science, and within the Council we need to have transparent, unambiguous governance structures and an engaged and expanded membership base with a fit-for-purpose organisational structure.

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ICSU’S THREE CORE AREAS OF FOCUS

1. SCIENCE FOR POLICY

The Council has been a sponsor of global science programmes for many decades. Our approach has evolved in this time and our newest programmes – Future Earth: Research for Global Sustainability, and Urban Health and Well Being – have both adopted a systems approach, changing the way we ‘do’ science, with a focus on the ‘how’ as well as the ‘what’.

For the Future Earth programme, a Scientific Committee and Engagement Committee of stakeholders across all sectors are now working together to co-design and then co-produce the initiative. Through co-delivery to the global community with continuous and iterative feedback and adjustment, Future Earth will greatly increase the benefits for societies.

Delivering this systems approach to science needs the broad support of governments in terms of resource commitments and funding, and the involvement of their scientific communities. Benefits come through collaboration, mutual learning and exchanges. Science can also help to build bridges between countries and across societies, leading to understanding and respect for each other’s positions and reduced conflict. This area of work is very important in that we undertake and lead science, providing information as a basis for policy development and implementation.

2. INTERNATIONAL RESEARCH COLLABORATION

The Council is unique in its membership, which consists of both national academies and discipline-based unions, and associations of scientists. In this focus area, the Council utilises those strengths and cooperates with intergovernmental and other non-governmental global science organisations. A good example is Future Earth. The programme is co-sponsored by the Council, the International Social Sciences Council, UNESCO, United Nations University, UN Environment Programme, World Meteorological Organization, the Sustainable Development Solutions Network and the Belmont Forum, a global consortium of science funding agencies.

3. UNIVERSALITY OF SCIENCE

Universality of Science relates to both the freedom to undertake science and the responsibilities associated with it in terms of benefits to societies, and is fundamental to scientific advancement and human and environmental wellbeing.

When we talk about freedom we mean freedom of movement, association, expression and communication for scientists. It also means equitable access to data, information and other resources for research. Regarding responsibility, scientists at all levels are expected to carry out and communicate scientific work with integrity, respect, fairness, trustworthiness and transparency, recognising its benefits and possible harms. We feel this principle is very important and strongly encourage others to follow it.

Adherence to the principle of Universality of Science is a condition for membership in the Council. The Council monitors, reports and, as appropriate, takes action on infringements of this principle. The Committee on Freedom and Responsibility in the conduct of Science (CFRS) serves as the principle’s guardian.

The main actions available to the Council in the case of the lack of freedoms for scientists are to appeal to authorities to right the wrong, writing formal letters, withdrawing privileges and membership, and publicly noting concerns. We also stress to scientists their responsibilities through our unions and associations of scientists, national members and other mechanisms.