STRENGTHENING INTERNATIONAL SCIENCE
FOR THE BENEFIT OF SOCIETY

ANNUAL REPORT

ICSU
International Council for Science

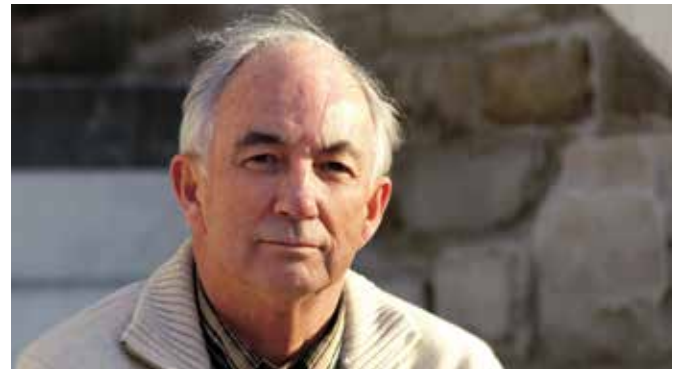
2014

THIS REPORT INCLUDES QR CODES IN A NUMBER OF PLACES, SUCH AS THE ONE PRINTED HERE. YOU CAN SCAN THESE WITH A QR CODE READER APP ON YOUR SMARTPHONE TO GET QUICK ACCESS TO EXTRA CONTENT REFERENCED IN THE TEXT.

The long-term vision of the International Council for Science is for a world where excellence in science is effectively translated into policymaking and socio-economic development. In such a world, universal and equitable access to 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.

The International Council for Science (ICSU) is a non-governmental organization with a global membership of national scientific bodies (120 members, representing 140 countries) and international scientific unions (32 members). ICSU mobilizes the knowledge and resources of the international scientific community to strengthen international science for the benefit of society.

MESSAGE FROM THE PRESIDENT



I am very proud to be President of the International Council for Science from 2014 to 2017. I think ahead to 2017 and the many challenges and opportunities that will confront us. But I also think back 60 years to 1957 when the International Council of Scientific Unions (ICSU), as we were then known, led the International Geophysical Year (IGY). The IGY facilitated scientific interchange between East and West; Sputnik was launched as a contribution to IGY and initiated a new way of seeing our planet: for the first time, Earth was observed from outside the atmosphere. The IGY also started the first coordinated global observational systems for greenhouse gases and stratospheric ozone that provided the basis for scientific understanding of these important global issues.

IGY is a reminder of the unique role of the International Council for Science as an enabler of international research collaboration. It can bring together the global scientific community, connect with leading scientific and technological institutions and collaborate with funding agencies to bring these programmes to reality. All this contributes to our mission to "strengthen international science for the benefit of society" and our long-term strategic vision for a "world where science is used for the benefit of all, excellence in science is valued and scientific knowledge is effectively linked to policymaking".

In the decades following IGY the Council, with partners, has played a leadership role in developing and sponsoring the major global environmental scientific programmes that have addressed important societal concerns. Now we are merging some of these programmes into Future Earth, an integrated, inter- and transdisciplinary global research programme "to provide the knowledge required for societies in the world to face risks posed by global environmental change and to seize opportunities in a transition to global sustainability".

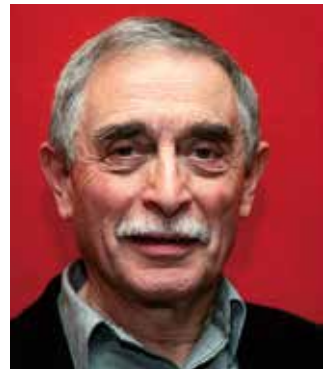
Another key area for the Council is Science for Policy. In 2015, as the nations of the world seek new agreements on climate change, disaster risk reduction and sustainable development that will guide the world's future, science can and must be a partner in these processes, to make sure that decision-makers have the best possible evidence available.

Our Council has unique capabilities to convene this role for science, being the only non-governmental organization with membership of both international scientific Union Members and National Members. This gives us a strong mandate to speak for the international scientific community. To further improve links between science and policy, the Council has convened, in 2014, a meeting of science advisers to governments, and is supporting the establishment of a global network that aims to strengthen the practice in all parts of the world.

We will only be able to address future challenges if we involve the next generation of researchers, and I am very excited about the decision of the General Assembly to strengthen their involvement in the Council's activities. I am fully confident that, building on our proven history of success, our research and policy activities will continue to strengthen international science and move towards making our long-term strategic vision a reality.

Gordon McBean, President

MESSAGE FROM THE EXECUTIVE DIRECTOR



Letter from Peter Liss as Interim Executive Director of ICSU (October 2014 to February 2015) to Heide Hackmann, Executive Director of ICSU from March 2015

Dear Heide,

Many congratulations on your appointment as Executive Director of ICSU; it is a wonderful job and you have a great opportunity to lead the organization on to greater achievements. Let me explain.

ICSU is a large global enterprise significantly different from other organizations in science. Its unique combination of unions, associations, associates and interdisciplinary bodies, as well as national members, gives it huge reach into science in its many manifestations, disciplinary and interdisciplinary research and science leadership.

It is impossible to accurately estimate the number of scientists, science leaders and administrators who participate in some way in ICSU activities, whether organized centrally or by the large array of ICSU bodies, but a figure in the order of 100,000 is easily justified. However, a major problem is that many of these people do not realize they are part of ICSU, some indeed do not know what ICSU is when asked the question! This is in part because their involvement is through an ICSU body, not through the central organization. Maybe this doesn't matter too much if the vital work of individual elements is performed well and is acknowledged as such by the relevant community. But ICSU deserves recognition for what it does and what it enables.

Further, we miss a big opportunity if this vast array of skills and ongoing work is not harnessed to the ICSU long-term strategic vision of "a world where science is used for the benefit of all, excellence in science is valued and scientific knowledge is effectively linked to policymaking".

In order to achieve this vision, ICSU developed its Second Strategic Plan 2012-2017 that identifies key priorities and associated activities, including how 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 scientists – regardless of race, citizenship, language, political stance, or gender – in international scientific endeavours; and provide independent, authoritative advice to stimulate constructive dialogue between the scientific community and governments, civil society and the private sector.

Recent examples of ICSU pursuing and achieving these ambitious goals are the Future Earth platform that brings together natural and social scientists to investigate what science can do to help society tackle the huge challenges we face from issues such as climate change, a growing population and how to feed it with least environmental damage, and many others. Although it has taken considerable effort by ICSU and partners over several years, Future Earth is now ready for lift-off.

Another example is the report recently presented to the United Nations to show how science can help in the development and implementation of the ambitious and aspirational sustainable development goals that the nations of the world will agree to in September 2015. Further, ICSU scientists are also playing large roles in the other UN global agreements being negotiated this year, on climate change and disaster risk reduction.

All the above examples show how science can help society tackle seemingly too-difficult-to-handle ("wicked") problems. These efforts have involved many ICSU scientists freely giving their knowledge and experience to the common good. It is a great platform for launching exciting new initiatives.

I wish you well in these and many future endeavours where the ICSU family is a major player in deploying the power of science for human benefit.

Bonne chance!

Peter, February 2015

AUCKLAND, NEW ZEALAND, WHERE THE 31ST GENERAL ASSEMBLY WAS HELD

STRATEGIC PLANNING / GENERAL ASSEMBLY

GENERAL ASSEMBLY

ICSU PRESIDENT YUAN-TSEH LEE AND DAVID SKEGG, PRESIDENT OF THE ROYAL SOCIETY OF NEW ZEALAND, AT THE ICSU GENERAL ASSEMBLY OPENING CEREMONY

The 31st General Assembly of the International Council for Science was held in Auckland, New Zealand, from 30 August to 3 September 2014. It was hosted by ICSU's National Member for New Zealand, the Royal Society of New Zealand. This was the first time the General Assembly was held in the South Pacific, and only the fourth General Assembly in the southern hemisphere.

In his opening remarks, outgoing ICSU President Yuan-Tseh Lee reminded attendees of the urgency for action on climate change, persistent poverty and hunger. He emphasized the need to strengthen international science to help humanity cope with global challenges and achieve a sustainable transformation.

Lee also paid tribute to the achievements of the global-environmental-change research programmes, which will soon merge into Future Earth. "Without them, we would hardly understand so much about our changing Earth," he said. The legacy of these programmes was honoured on the first day of the Assembly, when the Executive Directors of the International Geosphere-Biosphere Programme (IGBP), the World Climate Research Programme (WCRP) and DIVERSITAS provided a look back at more than three decades of research in these programmes and in the International Human Dimensions Programme on Global Environmental Change (IHDP).

At the end of the meeting, Canadian climate and global change scientist Gordon McBean took over the Presidency, to which he had been elected at the last General Assembly in Rome in 2011. McBean has been involved in ICSU and ICSU-related affairs for many years, including in WCRP and in the planning of the Integrated Research on Disaster Risk (IRDR) programme, whose Scientific Committee he chaired until 2011. McBean said he was "very proud of the role the Council has played, and will continue to play, in planning, coordinating and 'making happen' global-scale research for the benefit of all societies".

The General Assembly adopted a position paper on scientific publishing, strongly endorsing open access to the scientific record. The statement stakes out 5 key goals for open access, and offers 12 recommendations that pave the way to attain them. The five goals in the statement assert that access to the scientific record should be: free of financial barriers for any researcher to contribute to; free of financial barriers for any user to access immediately on publication; made available without restriction on reuse for any purpose, subject to proper

SEE MORE PHOTOS FROM THE 31st ICSU GENERAL ASSEMBLY

attribution; quality-assured and published in a timely manner; and archived and made available in perpetuity. For the full report, go to: http://bit.ly/open-access-report

The Assembly also elected a new Executive Board, and decided on the next ICSU President. President-elect Daya Reddy is an internationally recognized mathematician from South Africa. He will take over the presidency from Gordon McBean at the next General Assembly in 2017, which will be held in Taipei. For the full Executive Board and the elected Officers, please see the end of this report on page 38.

READ THE ICSU STATEMENT ON OPEN ACCESS

EXTERNAL REVIEW

Following a decision by the 30th ICSU General Assembly in 2011, an external review of ICSU was conducted in 2013/14 by a ten-member panel chaired by Peter Knight. Their report was presented to the General Assembly in Auckland. The previous review was carried out 18 years ago.

The panel made a number of recommendations that are briefly summarized here. The full report is available at http://bit.ly/external-review

A major recommendation is that ICSU must regain its position as the organization that speaks for the broad international scientific community. This can be achieved, the panel says, by clarifying the ICSU vision statement and paying particular attention to its implementation. The panel specifically recommends the production of position papers and policy documents and their wide dissemination through a revamped communication effort. A first example for such an activity is the report "Review of Targets for the Sustainable Development Goals: The Science Perspective", development of which was started in November 2014 for publication in early 2015. The panel also recommends having a limited number of flagship projects where ICSU takes the lead, such as Future Earth, where ICSU played a major role.

Compared with earlier times there are now a larger number of bodies involved in organizing scientific collaboration internationally. In this crowded field the panel recommends that ICSU should clarify its relations with, inter alia, the Interacademy Partnership (IAP), the Global Research Council (GRC), The World Academy of Sciences (TWAS) and the World Academy of Art and Science (WAAS), work collaboratively with them, as appropriate, and also develop its own distinctive personality in the international arena. The institutional collaboration called for is based on the understanding that our responses to current global challenges require joint effort and inclusive knowledge production across all scientific fields. To achieve these bold objectives the panel concludes that ICSU needs to be active in fundraising and recommends engaging the services and influence of past Presidents, the formation of a not-for-profit foundation and sees the need to involve business and industry both in its science and policy work, as well as a source of funding for various projects.

The panel makes a considerable number of recommendations about governance. These include a membership drive to increase participation across the disciplinary spectrum, by industry and commerce, as well as the recruitment of new union and associate members. The panel stresses the importance of encouraging early career scientists to participate in ICSU's work and in this context a paper describing how to achieve this goal has recently been approved and is now being implemented. For example, we will soon see significantly more early-career scientists serving on various ICSU committees and working groups.

The three Regional Offices of ICSU support research in Africa, Latin America and the Caribbean, and the Asia and the Pacific region. The review comments favourably on several aspects of their work but also recommends instances where improvements can be made. These include establishment of a professional development strategy for staff members, review of the work of the offices every five years and identification of a liaison person in Paris for each office – which has already been done – and holding some ICSU meetings at the regional offices to increase interaction.

CHRISTINE JASONI, YVONNE GRÜNDER, KIMBERLY NICHOLAS, WILMA WATERLANDER, FOLA BABALOLA AND JIAZHONG XU.
THE PANEL OF EARLY-CAREER SCIENTISTS AT THE GENERAL ASSEMBLY

SCIENCE ADVICE TO GOVERNMENTS CONFERENCE

ROGER PIELKE, DIRECTOR OF THE CENTER FOR SCIENCE AND TECHNOLOGY POLICY RESEARCH, UNIVERSITY OF COLORADO

On 28–29 August 2014, prior to the General Assembly, ICSU convened the first global meeting on science advice to governments. It assembled national science advisers, advisory committee members, policymakers and academics from more than 40 countries. The meeting was held in Auckland, New Zealand, and was hosted and chaired by the Chief Science Advisor to the Prime Minister of New Zealand, Peter Gluckman.

The goal of this high-level event was to discuss key challenges and good practices of science advice to governments and to explore how the interface of science and policy can be improved. Participants explored lessons learned based on practical experience from both long-standing and more recently established science advisory models.

Participants agreed that science advice was critical for underpinning everything from economic growth through poverty alleviation, international trade, diplomacy, sustainable development to disaster risk management. The importance of strengthening collaboration among science advisory structures worldwide was underlined.

The conference ended with a call to develop an international peer network of science advice practitioners and scholars. ICSU is working with Gluckman's office and with the Organizing Committee of the conference to take this initiative forward. Several follow-up options are being explored.

Prior to the conference, ICSU, together with Gluckman's office and the University of Sussex, developed a briefing paper, entitled "Science Advice to Governments: Diverse systems, common challenges". This document provides a rough guide to scientific advice, its principles and prospects. Several ICSU National Members contributed to this document by describing science-advisory systems in their countries.

This paper, a synthesis report of the conference as well as other conference resources and presentations are available on the conference's website at: http://www.globalscienceadvice.org/.

Q&A SESSION AT THE CONFERENCE

KARI RAIVIO (R.), WITH RAJA CHIDAMBARAM (M.) AND DAVID MAIR (L.)

SEE MORE PHOTOS FROM THE SCIENCE ADVICE TO GOVERNMENTS CONFERENCE

INTERNATIONAL RESEARCH COLLABORATION

ATACAMA DESERT—OFTEN CALLED THE DRIEST PLACE ON EARTH—RECEIVES LESS THAN A MILLIMETER OF RAIN PER YEAR

FUTURE EARTH

Significant progress was made in 2014 on consolidating the operations and governance of Future Earth, the ten-year research programme on global environmental change and transformations to sustainability.

In November 2014 the Science and Engagement Committees of Future Earth published the Future Earth 2025 Vision, which outlines what the programme will contribute over the coming decade to achieve its vision for people to thrive in a sustainable and equitable world. The Strategic Research Agenda 2014 was also published in December. This document presents a global change and sustainability research agenda, and identifies key priorities for the next three to five years. It is the result of a year-long consultation process with global environmental change research communities and stakeholders from business, government and civil society, as well as an open online survey that received contributions from people in 74 countries.

The global environmental change core projects, the global science networks that are the foundation of Future Earth, continue to advance frontier science and facilitate interaction amongst scientists across disciplines. On the eve of the UN Climate Summit in New York in September the Global Carbon Project released an update of the global carbon budget. Latest figures suggest that, at the current rate of CO_2 emissions, the remaining "budget" of emissions available to have a likely chance of keeping average global warming under 2°C will be used up in around 30 years.

In January 2014, a meeting of the core projects was held in Washington DC, hosted by the US National Academy of Sciences. These projects are now all in the process of affiliating formally to Future Earth. The meeting created a forum for greater awareness and cooperation among existing core projects, supporting Future Earth's primary objective of more connected and problem-oriented science.

An outcome of the meeting was the development of proposals for new Future Earth Fast-Track Initiatives and clustering activities. Following selection by the Science Committee and interim Engagement Committee, eight initiatives were launched in August 2014. These are intended to kick-start integrated activities and strengthen interdisciplinary collaboration. They will each produce specific outputs, such as

publications, within a relatively short time frame, or will develop a basis for research over the longer term. The initiatives that received funding were:

–Exploring nitrogen in Future Earth

–Scientific support for IPBES knowledge generation

–Liveable urban futures

–Bright spots: seeds of a good Anthropocene

–Global biodiversity monitoring, prediction and reporting

–Extreme events and environments from climate to society

–Linking Earth-system and socio-economic models to predict and manage changes in land-use and biodiversity

–Sustainability for water, food and energy through integrated water information and improved governance

A further two groups of complementary proposals, one on Arctic issues, and one on climate research and services for Africa, were awarded seed funding to support the development of collaborative proposals. All of the Fast-Track Initiatives and Clusters bring together a global team of researchers representing two or more of the core projects.

The International Human Dimensions Programme on Global Environmental Change (IHDP) closed in June 2014 after 18 years of operation, with all of its core and joint science projects having entered the affiliation process with Future Earth. Through the integration of these projects and the development of new interdisciplinary activities, Future Earth will build on decades of excellence in social-science research led by IHDP.

The DIVERSITAS programme on biodiversity closed in December 2014 after 23 years of operation, with activities of the core projects and international secretariat transitioning to Future Earth. In line with this transition, a conference to celebrate DIVERSITAS and its legacy was held in September 2014 in Seville. The celebration included a hundred guests representing present and past members of the some 5,000 strong DIVERSITAS community. The celebration showcased the achievements of DIVERSITAS and highlighted the new opportunities for biodiversity science afforded by the transition to Future Earth.

An open call for applications for the Future Earth Engagement Committee was launched at the beginning of 2014. A 15-member Engagement Committee was appointed by the Governing Council of Future Earth, the Science and Technology Alliance for Global Sustainability (the Alliance), in November 2014, chaired by the Indian politician and economist Jairam Ramesh. Amy Luers, Director of Climate at the Skoll Global Threats Fund, was named Vice-Chair. A further three committee members are expected to be appointed in early 2015. The

FUTURE EARTH SCIENCE & ENGAGEMENT COMMITTEE MEETING, DECEMBER 2014, BUENOS AIRES, ARGENTINA

FUTURE EARTH MEETING OF GLOBAL ENVIRONMENTAL CHANGE PROJECTS, JANUARY 2014, WASHINGTON DC, USA.

Engagement Committee replaces the interim Engagement Committee, which, under the chairmanship of Sir Bob Watson, was instrumental in taking forward Future Earth's activities in 2014. The Engagement Committee provides leadership and strategic guidance on involving stakeholders throughout the entire research process from co-design to dissemination, ensuring that Future Earth provides the knowledge society needs.

Future Earth held events at major conferences, including the European Geosciences Union (EGU) General Assembly and American Geophysical Union (AGU) Fall Meeting and participated in many open science conferences hosted by the core projects and wider research community. A Future Earth Green Room event was held at the United Nations Environment Programme Assembly in June 2014 in Nairobi, Kenya, on the topic of "Science co-producing knowledge for policy". The first Future Earth Forum was organized by the Alliance immediately after the UN Climate Summit in September, bringing together a high-level group of researchers and decision-makers from finance, business, foundations, UN bodies and the media to help co-design the solutions-oriented research that society needs.

The Future Earth website was launched in March 2014, and the blog, newsletters and social media continue to support engagement and outreach, attracting new contributors and followers worldwide.

Following a call for bids to host the Executive Secretariat of Future Earth, a globally distributed consortium was announced as the winning bid by the Alliance in July 2014. The Executive Secretariat will have hubs in Paris (France), Stockholm (Sweden), Montreal (Canada), Boulder (USA) and Tokyo (Japan). Regional Hubs will be established in Europe, Asia, Latin America, Africa, and in the Middle East and North Africa region. The interim Secretariat based at the ICSU offices in Paris will close at the end of April 2015, after handing over operations to a new Executive Director and Secretariat.

INTEGRATED RESEARCH ON DISASTER RISK – IRDR

Integrated Research on Disaster Risk (IRDR) is a global, transdisciplinary and intersectoral research programme to address the major challenges of natural and human-induced environmental hazards. Co-sponsored by ICSU, the International Social Science Council (ISSC), and the United Nations International Strategy for Disaster Reduction (UNISDR), IRDR pursues three key objectives:

1. Characterizing hazards, vulnerability and risk;
2. Understanding decision-making in complex and changing risk contexts;
3. Reducing risk and curbing losses through knowledge-based actions.

Three cross-cutting action lines support IRDR's work towards these objectives:

1. Capacity-building across sectors to advance disaster risk reduction at different levels and across multiple hazards;
2. Case studies and demonstration projects;
3. Advancing assessment of data and monitoring tools for hazards, risks and disasters.

IRDR played a leading role in strengthening the role of integrated disaster risk reduction science both in the negotiations on Sustainable Development Goals (SDGs) and, more prominently, in the preparations for the Third UN World Conference on Disaster Risk Reduction (3rd WCDRR), which will see governments adopt a successor to the 2005 Hyogo Framework for Action (HFA). IRDR led the Science and Technology (S&T) discussions

LAVA OVERRUNS A KAOHE HOMESTEADS ROAD

at the preparatory committee meetings concerning the post-2015 framework, delivering, at expert and open meetings in Geneva and elsewhere, numerous statements, for example on the necessary integration of disaster risk reduction and development policies. With a coordination role provided in partnership with the International Union for Geodesy and Geophysics (IUGG), IRDR participated in the production of a concise study of disaster risk reduction science needs and advisory capacities.

The four IRDR core project working groups successfully injected their products into a range of activities in the domains of science, policymaking and practice. To name but a few examples, the Assessment of Integrated Research on Disaster Risk (AIRDR) Working Group produced three reports as supporting evidence for the work of the 2015 edition of the Global Assessment Report on Disaster Risk Reduction (GAR15); the Disaster Loss Data (DATA) Working Group, with its Peril Classification and Hazard Glossary, contributed baselines for work towards EU-wide and Asia-wide intergovernmental practices in disaster loss recording; the Forensic Investigations of Disasters (FORIN) Working Group continued its capacity building exercises in view of emerging case studies and conducted a review of work delivered so far; the Risk Interpretation and Action (RIA) World Social Science Fellows completed their collaborative pilot research projects and launched a series of dissemination exercises: new sub-groups on risk communication were established with foci on children and youth and on indigenous knowledge. In June 2014, IRDR convened the 2nd IRDR conference in Beijing, China, with more than 300 participants from 54 countries attending.

IRDR also expanded its networking and partnership activities globally with the establishment of two new International Centres of Excellence (ICOEs): IRDR ICOE-REAL, a pan-Africa network of centres, and IRDR ICOE-RIA, a London-based consortium of leading research university institutes. One new National Committee – Australia – joined the Programme, and contributed numerous activities in the second half of the year. In November, IRDR held its first consultative meeting of National and Regional Committees to plan for better coordinated engagements within the IRDR network. At the regional level, successful interactions continued with ICSU's Regional Offices as well as with UNISDR's regional structure, such as the IRDR-co-chaired Science, Technology and Academia stakeholders group of the ISDR Asia Partnership, which aims at streamlining disaster risk reduction science advancement through the engagement of higher education institutions and civil society organizations.

URBAN HEALTH AND WELLBEING

The Urban Health programme is a ten-year interdisciplinary research effort that seeks to generate policy-relevant knowledge that will improve health status, reduce health inequalities and enhance the wellbeing of urban dwellers. It will focus on the integration of natural, social, medical and engineering sciences using systems approaches to address the complexity of urban issues and their influence on health.

Led by the International Council for Science, and co-sponsored by the United Nations University and the InterAcademy Medical Panel, the new programme will inform city planning, policies and design with science-based strategies and tactics to improve the health of billions of people living in fast-growing urban areas. It will also identify and help manage the unintended health consequences of urban policy and the connections between cities and global change. It will provide a hub for interdisciplinary scientific knowledge development, exchange and communication. It will support city leaders and managers to make informed policy decisions by providing science-based information on the costs and benefits of healthy urban system structures and better urban health. It will build capacity in scientific and other stakeholder communities to learn and apply systems methods and inform urban residents on healthy urban structures and ways to achieve and maintain better health.

In October 2014, Franz Gatzweiler was appointed Executive Director of the programme. He is a resource economist with systems analysis expertise in a highly interdisciplinary research context at the nexus of poverty, exclusion and ecology.

The new international programme office of Urban Health and Wellbeing opened in December 2014 in Xiamen, China. It is hosted by the Institute of Urban Environment at the Chinese Academy of Sciences. On the occasion of the programme office's opening, Urban Health also held a two-day expert workshop bringing together around 60 experts.

VILLA VIGONI YOUNG SCIENTISTS NETWORKING CONFERENCE

In May 2015, ICSU, in collaboration with ISSC and the German Research Foundation (DFG), held its second young scientists networking conference on integrated science at Villa Vigoni, the German-Italian Centre for European Excellence in Menaggio, Italy. Thirty early career researchers from across disciplines and from all continents attended this week of intensive discussion, brainstorming and networking on the topic of "Ecosystems and Human Wellbeing in the Transition to the Green Economy".

As at the first conference, ICSU Communications produced a short video about the conference that included interviews with the early career researchers on their visions for a greener economy. The video can be watched online at: http://bit.ly/villavigoni

The third conference in the series, on the topic "Future Sustainability – The role of science in the Sustainable Development Goals", will be held in May 2015.

WATCH THE VIDEO FROM THE YOUNG SCIENTISTS NETWORKING CONFERENCE AT VILLA VIGONI

ABOVE: YOUNG SCIENTISTS NETWORKING CONFERENCE ON INTEGRATED SCIENCE AT VILLA VIGONI

LEFT: OPENING OF THE INTERNATIONAL PROGRAMME OFFICE OF THE URBAN HEALTH AND WELLBEING PROGRAMME

GRANTS PROGRAMME

The ICSU Grants Programme supports collaborative scientific initiatives of relevance to science and society through seed funds that are often used to lever funds from other sources. It is a competitive, peer-reviewed programme for ICSU Scientific Unions, Interdisciplinary Bodies and Joint Initiatives in collaboration with other ICSU bodies including Regional Offices. Since 2008, the programme has offered up to ten awards of 30.000 euros. The programme seeks proposals that:

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focus on the themes of the ICSU Strategic Plan 2012-2017 and are international and multi-disciplinary

involve scientists across disciplines and national borders

promote the involvement of young scientists, women and scientists from developing countries

address the strategic priorities of the ICSU Regional Offices.

Eight projects received grants in 2014. A total of 239.000 euros was awarded.

LEAD APPLICANT	SUPPORTING APPLICANTS	REGIONAL OFFICE	TITLE OF PROJECT
IMU	UNESCO, ICMI, COSTECH, AKU, AAS, ICIAM	ROA	East African Capacity Network Project
IUFOST	IBRO, IUPS, IUPESM, IUIS, IUBS, IUNS, IUPAB, IUBMB, IUMS,		A Multi Scale Systems Biology Approach
IUGG	INSA	ROAP	Uniting & networking the magnetic community in the northern Indian Ocean region (MAGNIO)
IUHPS (DLMPS)	IMU, IMCI		Cultures of Mathematical Research Training
IUTOX	German & Mexican Societies of Toxicology	ROLAC	Water Security: Integrating Lessons learned for Water Quality
IUPAC	IUCr, USNAS & National Committees to IUPAC		CONcepts and termiNology in Crystal Engineering (CONvINCE)
WCRP-ICTP		ROLAC	Summer school on prediction and attribution of extreme events
IUPAP		ROLAC	Advancing the agenda of women physicists

BUILDING ON DISCIPLINARY STRENGTHS

ICSU's Union Members play an essential role in providing the disciplinary base of its science programmes and other activities. In this section, key activities and contributions from some of the Union Members during the last year are highlighted.

MARVIN HACKERT

INTERNATIONAL YEAR OF CRYSTALLOGRAPHY

A Q&A with Marvin Hackert, President of the International Union of Crystallography.

2014 was an exciting year for your Union as it was the International Year of Crystallography. How did it happen and what role did IUCr play to initiate this important year?

Credit for the idea and the impetus for an international year came from the members of the Executive Committee of the IUCr. Encouraged by an International Year of Astronomy (2009) and the prospect of an International Year of Chemistry (2011), it gave credence that there could be an International Year of Crystallography. There were several potential centennial opportunities to celebrate: 2012 – von Laue, first demonstration of X-ray diffraction; 2013 – the first crystal structure determinations by the father and son team of William Henry and William Lawrence Bragg; 2014 – Noble Prize to von Laue; 2015 – Noble Prize awarded to the Braggs, so we had some flexibility on which year to use for IYCr. The initial hurdles were to understand the process by which such resolutions could be introduced and passed by the United Nations, to identify a lead partner (UNESCO) and a member nation to introduce and champion the measure in the UN. The IUCr was very fortunate that Morocco was willing and able to carry the measure forward through the approval process within the United Nations.

What were the highlights of the year?

There were many highlights of the IYCr, beginning in January with a very successful opening ceremony at the UNESCO headquarters in Paris that featured a number of young crystallographers from around the world, the hundreds of crystal-themed educational events and public displays held in countries all around the world, including very popular international crystal-growing competitions which were a successful way of engaging young schoolchildren. The 16 Open Labs to introduce and train new crystallographers in many parts of the world, and three major summit meetings held in Southeast Asia (Pakistan), Latin America (Brazil) and Africa (South Africa) to highlight the difficulties and problems of conducting competitive scientific research in different parts of the developing world were also very successful. Finally,

we were able to showcase many of the activities of IYCr at our triennial Congress that was held in Montreal, Canada, in August.

What were the main achievements? Was it more about raising public awareness of the discipline Itself – one imagines that before 2014 many people did not even know what the discipline was – or highlighting its importance in today's world?

There were two overarching goals for IYCr: one was to increase public awareness of the discipline and its contributions and benefits to society and the other was the education and training of crystallographers in the developing parts of the world. Most of the activities addressing public awareness were decentralized, happening all around the world in a variety of creative ways. The major training efforts were coordinated by the IUCr in partnership with UNESCO and the manufacturers of X-ray diffraction equipment. Here the focus was on Open Labs and Summit meetings as ways to promote crystallography in those parts of the world where crystallography was not so well developed.

What is IUCr doing to build on the successes of this year to continue building public awareness around the importance of this discipline?

The intent of the IUCr was always to use the IYCr as a launching pad to build a legacy for future events and activities. It is our intent that events like the Open Labs, crystal-growing competitions for schoolchildren, and many other activities started during IYCr will be transformed into long-term sustainable initiatives supported by the IUCr. Another major accomplishment was the creation of the IYCr2014 website. This website is a treasure trove of information on all things crystallographic and a record of what happened during the international year. A timeline was created that serves as a lasting educational resource on the history and major milestones in the development of crystallography, a photo gallery that highlights IYCr events from around the world, and a repository to share educational materials. Also, in lieu of a closing ceremony, a legacy conference is planned in April in Rabat, Morocco, to review the events of the IYCr, highlight the progress made in Africa, and to identify and prioritize what activities the IUCr should continue to invest in going forward.
www.iycr2014.org

INTERNATIONAL UNION OF BASIC AND CLINICAL PHARMACOLOGY – IUPHAR

In 2014, IUPHAR launched www.guidetopharmacology.org. This repository is the result of a merger of its Database on Receptors – a freely available, regularly updated, richly annotated reference on medicines and experimental drugs and their targets, curated by 80 expert subcommittees – and the British Pharmacological Society's Guide to Receptors and Channels. One of the main aims of the merger was to provide a comprehensive, searchable database with quantitative information on drug targets and the prescription medicines and experimental drugs that act on them.
The information in the database is presented at two levels: the initial view or landing pages for each target family provide expert-curated overviews of the key properties and selective ligands and tool compounds available. For selected targets, more detailed chapters for each family are available along with curated information on the pharmacological, physiological, structural, genetic and pathophysiological properties of each target. The database is complemented with hyperlinks to additional information in other databases including Ensembl, UniProt, PubChem, ChEMBL and DrugBank, as well as curated chemical information and literature citations in PubMed.

Over the next few years the database will be expanded to include major areas of interest to pharmacology with links to other websites. A primary goal is to provide information on all the targets of currently licensed drugs as well as other potential targets of interest. This knowledge base is used by more than 140 countries and is actively promoted by IUPHAR and British, US, Japanese, Chinese, Indian and African pharmacological societies.
www.iuphar.org

GEOUNIONS

Ahead of the Third United Nations World Conference on Disaster Risk Reduction in Sendai, Japan, in 2015, the scientific community has been working hard to convince governments that a scientific approach should be taken more seriously in disaster risk reduction (DRR).

As a response to the initiative on strengthening integrated research and developing periodic international (intergovernmental) scientific assessments of disaster risks at local to global levels proposed by the International Union of Geodesy and Geophysics (IUGG) and supported by leaders of the ICSU GeoUnions (www.icsu-geounions.org), ICSU and ISSC

established in 2014 an ad-hoc international multidisciplinary group of disaster risk experts to prepare a synthesis paper on science-driven DRR for the conference in Sendai. The expert group comprises natural and social scientists, engineers and practitioners, and represents the ICSU and ISSC Unions, IRDR and ICSU Regional Committees.

The paper reviews and synthesizes challenges in the understanding of natural hazards, vulnerabilities and disaster risks, and highlights potential contributions of science to DRR. Scientific research and periodic assessments of disaster risks are the central points of the paper. Namely, it emphasizes (I) the importance of co-design of research with public, private and civil society stakeholders, (II) the necessity of natural and social sciences, engineering, health and humanities to be deployed in conducting research, and (III) the importance of connectivity of research, policy and practice on DRR and resilience across sectors and scales. Periodic assessments (similar to those of the Intergovernmental Panel on Climate Change (IPCC)) would provide governments and society with scientific knowledge and syntheses of the policy-relevant results of the best available research. Periodic assessments would significantly enhance our knowledge of disaster risk at local, regional, national and global levels and the awareness of those living with risk. The work was supported by the National and Union Delegates of the 31st ICSU General Assembly.

INTERNATIONAL UNION OF FOREST RESEARCH ORGANIZATIONS – IUFRO

In October 2014, just a year before a new United Nation's post-2015 development agenda will be adopted and the Sustainable Development Goals come into effect, the 24th IUFRO World Congress took place in Salt Lake City, USA. It underlined the importance of forests and their sustainable management for achieving these goals. For this endeavour the best available knowledge and a solid base of scientific forest data are needed.

Against this background, IUFRO presented a series of Research Letters at the Congress encompassing IUFRO's scientific priorities for the benefit of forests and people worldwide. The series highlights the scientific findings of nine IUFRO Task Forces between 2011 and 2014 on forest-related topics that are high on the political agenda and of strong concern when discussing sustainable development:

Forests for People

Forests and Human Health

Forests and Climate Change

Education in Forest Science

Resources for the Future

Biodiversity and Ecosystem Services

Forest and Water Interactions

Forest Bioenergy

International Forest Governance

The 2014 Congress also served as a stage for launching a comprehensive study of the conditions that assist sustainable forest development. The title of the book produced by the IUFRO Special Project on World Forests, Society and Environment (IUFRO-WFSE) is Forests Under Pressure – Local responses to global issues. The study reflects an effort to move towards a more integrated and holistic approach in analyzing the different conditions that influence resource management and, in particular, associated forest and livelihood outcomes.

An IUFRO-led Global Forest Expert Panel (GFEP) is preparing an assessment of scientific knowledge about the role of forests and trees for food security and nutrition to be presented at the UN Forum on Forests in 2015. The report aims to provide policymakers, investors and donors with a stronger scientific basis for their decisions, policies and projects related to forests, trees, food security and nutrition.
www.iufro.org/iufro

INTERNATIONAL UNION OF HISTORY AND PHILOSOPHY OF SCIENCE – IUHPS

The two divisions of IUHPS carried out several significant activities during 2014. These two divisions are the Division of History of Science and Technology (DHST) and the Division for Logic, Methodology, and Philosophy of Science (DLMPS). The two divisions continued to jointly support a Teaching Commission, which is developing new methods for teaching history and philosophy of science, particularly to science students. This is particularly relevant to one of ICSU's main goals – the improvement of science education. The Commission's activities are explained in more detail on its website at www.ihpst.net

The IUHPS initiated the project "Cultures of Mathematical Research Training", which was funded by ICSU. In this project, researchers studying mathematical research practices engaged with stakeholders from society and funders to discuss research questions that could have an impact on policy decisions and capacity building in mathematics. The project is coordinated by Professor Benedikt Loewe, Assistant Secretary-General of DLMPS/IUHPS and Dr Brendan Larvor from the University of Hertfordshire.

DHST organized a conference in Marseilles in December 2014 on the theme of "Science and Scientists in the Global Context: The circulation of knowledge and techniques".
www.iuhps.net

INTERNATIONAL UNION OF SOIL SCIENCES – IUSS

The Istanbul Carbon Summit sought to bridge carbon trade and technology to forestry and soils and was held in Istanbul, Turkey, 3–5 April. IUSS also held the 20th World Congress of Soil Science (20WCSS) in Jeju, Korea, 8–13 June, with the theme of "Soils Embrace Life and Universe". IUSS also developed the 3rd edition of the World Reference Base for Soil Resources, which was launched in Jeju. The 3rd International Salinity Forum was held in Riverside California from 16 to 18 June. It focused on the challenge of managing saline waters and soils to sustain crop production and maintain environmental quality while considering economic and social aspects. The XIII International Symposium and Field Workshop on Paleopedology was held in Torun, Poland, 1–6 September. Many aspects of paleosoils studies were presented during thematically focused scientific sessions. The XX Latin American Congress of Soil Science was held in Cusco, Peru, 9–15 November 2014. The Congress entitled "Educate to Preserve the Soil and Conserve Life on Earth" provided a platform for scientific and cultural exchanges between researchers, professionals, teachers, students and other parties. Finally, IUSS published a statement for the Celebration of the UN World Soil Day in Rome and New York, on 5 December. The World Soil Day (WSD) was initiated by the IUSS Council in 2002 during the 17th World Congress of Soil Science in Bangkok. In December 2013 the UN not only installed the WSD, but also declared 2015 as the "Year of the Soils".
www.iuss.org

INTERNATIONAL UNION OF FOOD SCIENCE AND TECHNOLOGY – IUFOST

In 2014, IUFOST made substantial progress in advancing food safety, education and food sustainability. Its achievements reflect the support and participation of its members and IUFOST's expanding global partnerships. The IUFOST World Congress of Food Science and Technology (World Food Congress) produced future directions in a number of key IUFOST initiatives.

International Academy of Food Science and Technology (IAFOST) Fellows are mapping the current state of affairs in order to generate recommendations on best practice, collaboration and programme changes in Food Research, Technology and Innovation. For Global Visions for the Role of Food Science and Technology to Meet Societal and Technological Challenges, IUFOST is also soliciting contributions at globalvisions.iufost.org.

An IUFOST-led ICSU Bio-Unions Initiative on Multi-Scale System Biology from the Perspective of Nanoscale Science was presented as a symposium at the IUFOST World Food Congress to explore interdisciplinary solutions to health and healthcare delivery through applications of nanoscale science. The second initiative will take place in 2015 in a symposium organised by Early Career Scientists from developing countries.

IUFOST was commissioned by the World Bank to lead the Global Food Safety Curricula Initiative (GFSCI) in 2012 and published a progress report in December 2014.

The Chinese Institute of Food Science and Technology and IUFOST held the 2014 International Forum on Food Safety, an event they have held jointly in Beijing since 2009. According to Joseph Jen, former Under-Secretary of the United States Department of Agriculture, "It is probably the most influential meeting on food safety in China, due to high government and industry attention."

IUFOST also publishes Scientific Information Bulletins (SIBS), presenting authoritative science on emerging food science issues. The most recent SIB reported on the Ebola virus disease. Another publication was issue 17 of World of Food Science. It features the work of young scientists and students presented during the 2014 World Food Congress.
www.iufost.org

INTERNATIONAL UNION OF MATERIALS RESEARCH SOCIETIES – IUMRS

IUMRS with its Member Societies organized several major interdisciplinary international research conferences and forums, addressing basic and applied research in advanced materials sciences; sustainable energy research, strategy and policy; perspectives and outlook for early-career researchers; and global networking online. IUMRS also announced a new major Award for Global Leadership and Service.

www.iumrshq.org

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS – IUPAP

Three major aspects of IUPAP work in 2014 were the International Conference on Women in Physics, ICWIP, in August in Waterloo, Canada, and other activities of its Working Group 5: Women in Physics; the 28th General Assembly in Singapore from 5 to 7 November; and the move of the IUPAP office from London to Singapore, effective from 31 December.

At the ICWIP, delegates from 50 countries heard inspiring lectures from Melissa Franklin (Harvard University, USA), Silvia Torres-Peimbert (UNAM, Mexico,), Claudia Felser (Max Planck Institute for Chemical Physics of Solids, Germany), Patience Mthunzi (National Laser Centre of South Africa), Sabine Stanley (University of Toronto, Canada) and Tsai-Chien Chiang (China, Taipei, author of the biography entitled Madam Wu Chien-Shiung: The First Lady of physics research), learned about the status of women in physics in other countries and workshopped ways of learning from each other to improve the representation of women in physics and physics education. This activity was supported in part by an ICSU Grant.

The 28th General Assembly endorsed the introduction of an International Women in Physics Day, and requested that the Working Group craft a set of guidelines to promote gender equity and continue their regular updates and analysis of the Global Survey of Physicists. The General Assembly also endorsed the production of policy briefs on energy, and moved to increase IUPAP's coverage of Soft Matter Physics and Accelerator Physics.

IUPAP will move from its host institute, the Institute of Physics in the UK, to the Institute for Advanced Studies at Nanyang Technological University, Singapore. This move acknowledges and supports the fast growth of the discipline in the region.

www.iupap.org

INTERNATIONAL MATHEMATICAL UNION – IMU

IMU applies regularly for two types of activities through the ICSU grants programme. Its Capacity and Network Project (CANP) holds one workshop per year in a different region of the world. Each workshop aims to build capacity in mathematics education and create a sustainable regional network. CANP 4, held in Tanzania in September and sponsored by ICSU, led to the formation of an East Africa Mathematics Education and Research Network. IMU is also involved in multidisciplinary activities with several other Unions.

Through its Committee on Electronic Information and Communication (CEIC), IMU is involved in questions of assessment of research, electronic publishing and open access, the potential creation of a World Digital Mathematical Library: summary of a report produced by the US National Research Council, and in Massive Open Online Courses. CEIC organized three panels on each of the last three topics at the International Congress of Mathematicians 2014 (ICM 2014). IMU is eager to share its expertise with ICSU and its sister unions and to join forces on questions of assessment of journals, assessment of individuals, open access publishing, etc.

IMU Prizes are announced during the International Congress of Mathematicians (ICM), which take place every four years. This includes the Fields medals, which are considered as the highest distinctions in mathematics. At ICM 2014, one Fields medal was won for the first time by a woman, Maryam Mirzakhani.

www.mathunion.org


UKRAINE

SCIENCE FOR POLICY

DISASTER RISK REDUCTION

Disaster risk reduction (DRR) is one of the three global processes led by the United Nations to foster a more resilient and sustainable world beyond 2015, together with climate change and sustainable development. The 3rd World Conference on Disaster Risk Reduction (WCDRR) to be held in Sendai, Japan, on 14-18 March 2015 will adopt a new global post-2015 agreement for DRR to follow up on the 2005 Hyogo Framework for Action.

ICSU has been at the heart of these efforts to promote an evidence-based global agenda for DRR and to raise the profile of science in efforts to reduce disaster risk and build resilience. In May 2014, in line with its objective to strengthen the science-policy-practice interface, ICSU, in collaboration with UKCDS, the Wellcome Trust, UNISDR and UNESCO, issued a statement on the need for an international science advisory mechanism for disaster risk reduction, to ensure science, engineering and technology are more effectively used in disaster risk reduction and in the successor agreement to the 2005 Hyogo Framework for Action. This partnership was further strengthened when ICSU was invited by UNISDR to lead the scientific and technological community at the 3rd WCDRR and in the preparatory work leading up to the conference.

Acting as the Organizing Partner of the Scientific and Technological Major Group, ICSU, working hand-in-hand with IRDR, has actively taken part in the preparatory phase of the conference and has called for a strong science base for the new framework, including at the two meetings of the conference's Preparatory Committees, held in July and in November 2014 in Geneva. Working closely with its partners, and in regular consultation with ICSU members and the wider scientific community, ICSU has proposed the following key directions to strengthen the contribution of science to risk prevention and reduction:

–Assessment of the current state of data availability and scientific knowledge on disaster risk and resilience;

–Synthesis of scientific evidence in a timely, accessible and policy-relevant manner;

–Scientific advice to decision-makers through close collaboration and dialogue to identify knowledge needs including at national and local levels, and review policy options based on scientific evidence;

–Monitoring and review to ensure that new and up-to-date scientific information is used in data collection and monitoring progress towards disaster risk reduction and resilience building.

In addition, two cross-cutting capabilities need to be strengthened:

–Communication and engagement among policymakers, stakeholders in all sectors and in the S&T domains themselves to ensure useful knowledge is identified, needs are met, and scientists are better equipped to provide evidence and advice.

–Capacity development to ensure that all countries can produce, have access to and use effectively scientific information.

These priorities reflect the needs expressed by many countries in the lead up to the conference for enhanced access to data and information, and application of science to decision-making and practices including at national and local levels. They serve as the basis for a voluntary commitment of the scientific community to support the implementation of the post-2015 framework for DRR.

As part of the preparatory work prior to the Sendai conference, IRDR will co-organize with the Science Council of Japan and UNISDR the "Tokyo Conference on International Study for Disaster Risk Reduction and Resilience: Towards a new science and technology to consolidate disaster risk reduction and sustainable development", to be held in January 2015, to discuss integrated strategies for DRR based on science and technology to be embodied in post-2015 framework for DRR and effective methods for its implementation.

PLANTING RICE SEEDLINGS,
YEN BAI, NORTHERN VIETNAM

SUSTAINABLE DEVELOPMENT

2014 was an important milestone in defining a global vision and priorities for sustainable development that integrate the economic, social and environmental dimensions of development. This process follows on from the UN Rio+20 conference on sustainable development and will result in the adoption of a post-2015 Development Agenda in September 2015 at the UN, with a set of Sustainable Development Goals (SDGs) at its core.

ICSU coordinated scientific inputs into the UN Open Working Group (OWG) tasked with coming up with a proposal for these SDGs and for targets that will operationalize the goals. The OWG released its outcome document in July 2014 and submitted it to the 2014 UN General Assembly held in September 2014. ICSU facilitated the participation of scientists at monthly meetings of the OWG, coordinated scientific inputs on the range of topics discussed including oceans, terrestrial ecosystems and biodiversity, health, cities and disaster risks. These contributions were synthesized in an ICSU-ISSC position statement on "Sustainable Development Goals for people and the planet". In October, ICSU put together a multidisciplinary group of scientists to review the goals and targets and provide concrete science-based recommendations to consolidate them. The final report of this effort is expected to be released in early 2015.

ICSU also worked to raise the profile of science in general, and of the Future Earth programme in particular, in the SDGs process as well as at the June 2014 meeting of the UN High-Level Political Forum on sustainable development, a platform created after Rio+20 for all countries to review progress and follow up on commitments for sustainable development. ICSU co-organized with the UN Department of Economic and Social Affairs and the United Nations Environment Programme an event on strengthening science-policy links to review progress on sustainable development as well as a session on Future Earth on modalities to co-design, co-produce and co-deliver knowledge for sustainable development. This work has led to strengthening the visibility of the Future Earth programme as an important research platform related to the international policy processes for the definition of priorities, the implementation and the monitoring of sustainable development. This has also led to partnership work with the UN system to strengthen the science-policy interface, for instance around the global sustainable development report, a UN annual publication that brings together information from scientific research and assessments on key issues for sustainable development.

2015 will be an intense year for the international community with three interrelated opportunities to further strengthen science-policy links and cross-disciplinary collaborations: the adoption of a universal agenda for sustainable development, a new framework for action on disaster risk reduction and a global agreement to tackle climate change. ICSU will continue to work with its members and programmes to ensure that science is adequately represented in all these processes.

DOWNLOAD THE NEW REPORT "REVIEW OF TARGETS FOR THE SUSTAINABLE DEVELOPMENT GOALS: THE SCIENCE PERSPECTIVE"


LOGIS

UNIVERSALITY OF SCIENCE

COMMITTEE ON FREEDOM AND RESPONSIBILITY IN THE CONDUCT OF SCIENCE – CFRS

To safeguard the Council's Principle of Universality of Science, the ICSU Committee on Freedom and Responsibility in the conduct of Science (CFRS) expanded its work on research integrity, took action in support of individual scientists whose human rights were infringed upon, intervened when the freedom of movement was curtailed and contributed to the revision of a key UN document on the status of scientists.

RESEARCH INTEGRITY

Jointly with the China Association for Science and Technology and the Chinese Academy of Sciences, the Committee held a workshop on science assessment and research integrity in Beijing in April. Benefiting from contributions from China, Brazil and South Africa, the meeting critically considered the impact of assessment systems, rankings and other metrics on the conduct of science. Extending its engagement in the three World Conferences on Research Integrity since 2007, the Committee will organise a symposium on the issue at the 2015 World Conference to further explore the links between science assessment and research integrity. Details are available on the Freedom & Responsibility Portal on the ICSU website, where a comprehensive compilation of codes of conduct for scientists from around the globe is available.

YANG WEI SPEAKING AT THE CFRS WORKSHOP IN BEIJING

CASES OF INDIVIDUAL SCIENTISTS

At its two meetings, the Committee considered six cases of individual scientists whose rights and freedoms were restricted, taking action in those instances where this was the result of them conducting scientific work. One such case is Büşra Ersanlı, a faculty member in the Department of Political Science and International Relations at Marmara University in Istanbul. Monitoring her case since she was arrested in October 2011, the Committee had written to the Turkish authorities to ask for her unconditional release on bail or for further information on the causes of her imprisonment. Pending the outcome of her trial, she was released in July 2012. In December 2014, the Committee's Chair, Leiv K. Sydnes, attended a court hearing against Büsra Ersanlı, whose case is now before the country's Constitutional Court.

FREEDOM OF MOVEMENT

During the Cold War, the Committee intervened when scientists were prevented from attending international scientific meetings for political reasons. Currently it is concerned that national policies to prevent illegal immigration, especially for economic reasons, negatively affect bona fide scientists seeking visas to attend meetings abroad. In 2013, a number of scientists who intended to participate at two annual Scientific Union congresses in the United Kingdom were refused entry. To help prevent similar problems in the future, the Committee alerted the ICSU Membership in writing and updated its guidelines available on the Freedom & Responsibility Portal.

UNESCO RECOMMENDATION

Adopted in 1974 and recognised by its 195 Member States, the UNESCO Recommendation on the Status of Scientific Researchers sought to assist the establishment of national policy frameworks for science and technology. Cognisant of the profound changes in the scientific and technological landscape, UNESCO in 2013 decided to update the document and launched a consultation with stakeholders. To assist this process and ensure a strengthening of the global science community, the Committee provided comments on the draft revision, including suggestions of issues that should find reflection in the revised document.

WORLD DATA SYSTEM MEMBERS FORUM

WORLD DATA SYSTEM (WDS)

A major highlight of the year was the presentation of the inaugural WDS Stewardship Awards to Robert Redmon and Xiaogang Ma at SciDataCon 2014 (see below for conference details). This yearly award showcases exceptional contributions to the improvement of scientific data stewardship by early career researchers through their engagement with the community, academic achievements and innovations.

Prior to the conference, more than 70 people participated in WDS' biennial Members' Forum. In the Scientific and Plenary Sessions of this open business meeting, WDS Members supported a set of by-laws for managing the daily affairs of WDS, and agreed to produce a public report of their activities every two years.

The WDS Scientific Committee saw several changes in 2014, with Kim Finney leaving in March and Sandra Harrison appointed in May. Sandra was the SC's guest at its 10th Meeting, during which the SC refined the WDS Strategic and Implementation Plans before formally publishing these documents in June. The Strategic Plan 2014–2018 outlines five targets important to achieving the objectives in the WDS Constitution. It operates in unison with the Implementation Plan 2014–2015, a 'living' document that lists and monitors activities for realizing the identified targets.

As WDS coverage broadens across new scientific domains, the SC re-examined the "full and open access" concept at its 10th and 11th Meetings. The endorsement of open access principles at the 31st ICSU General Assembly (GA) is of particular importance to WDS in revising its Data Policy. At the GA, Bernard Minster presented the triennial WDS report; the Assembly resolved that WDS would continue its mission and thanked Japan for hosting the International Programme Office.

CODATA

The data revolution presents challenges and opportunities for international science. CODATA's mission is to serve ICSU by addressing this priority area under the strategic areas described below. Headline activities in a busy 2014 included:

–Advocacy. Making the case for open data with national and international science and governmental bodies (e.g. G8, talks and expert reports for stakeholders, including national academies).

–Promoting effective data policy and practice. CODATA contributed substantively to many data-policy initiatives including ICSU's own Statement on Open Access, the Group on Earth Observation's revised Data Sharing Principles and draft Data Management Principles, as well as advocating the Joint Declaration on Data Citation Principles.

–Capacity building in the global south. In June, CODATA organized a two-week training workshop in Beijing on Data Science and Big Data for developing countries. This was followed by a training workshop and symposium in Kenya on Open Data for Science and Sustainability in Developing Countries. This agenda is being pursued by efforts to establish a reproducible model for Data Science Summer Schools.

–Addressing the frontiers of data science. CODATA convened a major symposium on Big Data for International Science Programmes. Held in Beijing, this event shed light on Big Data challenges for ICSU programmes and published a statement of recommendations. Thanks to an ICSU Grant, CODATA convened 15 Unions to produce a Uniform Description System for Nanomaterials.

In consultation with ICSU, and by coordinating with the Research Data Alliance and the World Data system, CODATA is seeking to advance a more focused and strategic approach to these issues.

The CODATA General Assembly, held in New Delhi, thanked its outgoing President, Guo Huadong, and elected a new Executive Committee and a new President, Geoffrey Boulton.

THE CODATA GENERAL ASSEMBLY, HELD IN NEW DELHI

SCIDATACON 14

SciDataCon 2014, the International Conference on Data Sharing and Integration for Global Sustainability, took place in November in New Delhi, India. The Conference was motivated by the conviction that the most significant research challenges – and in particular, the pressing issues relating to global sustainability in the face of ongoing natural and human-induced changes to the planetary system – cannot be properly addressed without paying attention to issues relating to data: including policy frameworks, quality and interoperability, long-term stewardship, and the skills, technologies and infrastructures required by increasingly data-intensive science.

The 'data revolution' provides notable opportunities for international science to investigate societally relevant issues in new ways and to develop evidence-based approaches for the formulation of policy. However, immense challenges are associated with managing the vast amounts of data currently being generated and in extracting robust and verifiable information. How do we ensure that valuable data are findable, accessible, interoperable and reusable? How do we combine diverse datasets from different scientific disciplines? How can we maximize the use of datasets to answer new questions? How do we assure the long-term preservation of datasets? What policies, standards, skills and technologies are required to ensure that data are as widely available and usable as possible? By seeking to address these questions, SciDataCon 2014 represented a milestone in discussions about the significance of data in science's ability to address the issues of global change and global sustainability.

SciDataCon 2014 addressed a range of important issues, and called for an urgent and sustained response of international science to the huge data challenges presented. There are many fields of science, and many countries, where data sharing and data stewardship are not the norm. There is still no clear model for how to support data infrastructures and services into the future, and despite the excitement surrounding 'Big Data', there is still much to do to develop the conceptual, analytic and management tools required to exploit such datasets. There is a need for policies for science, as well as skills and capacity-building initiatives, to reduce the digital divide and to ensure that the benefits of the data revolution are genuinely global. CODATA and WDS will continue to engage their Members and the wider scientific and policy communities to address these issues so that scientific data can play a role in moving towards greater equity and sustainability.

SciDataCon 2014 was hosted by the Indian National Science Academy (INSA), and co-organized by CODATA and WDS. This was the first time that the two organizations have joined forces to convene an international meeting designed to confront data issues.

IMPRESSIONS FROM SCIDATACON 2014

WORKING WITH THE REGIONS

In 2014, the ICSU Regional Offices undertook a number of activities to support the work of ICSU's Interdisciplinary Bodies.

FUTURE EARTH

The ICSU Regional Offices continued their efforts in raising awareness of Future Earth and providing input to its development at the regional level.

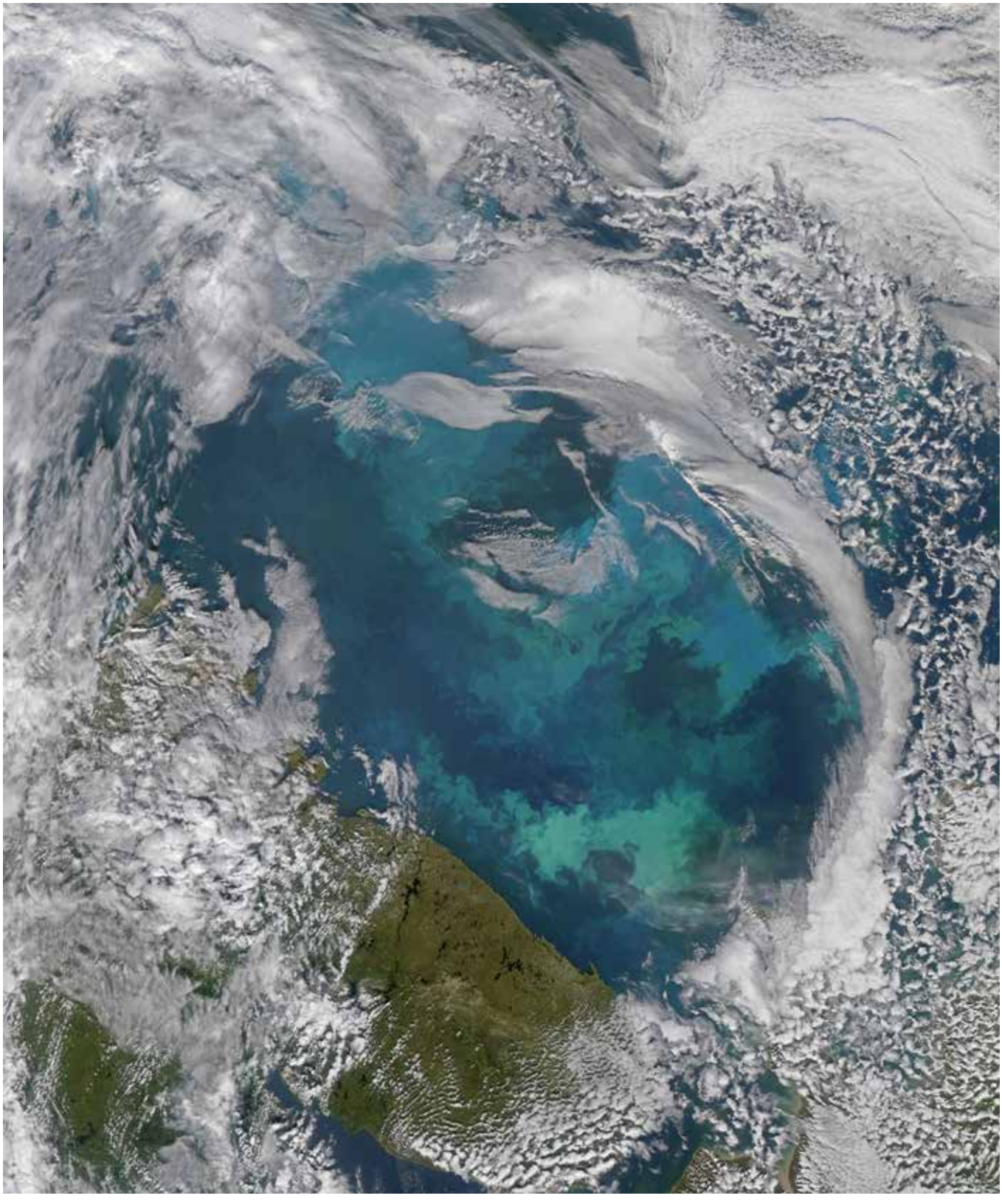
The ICSU Regional Office for Asia and the Pacific (ICSU ROAP), together with the Marine Science Institute of the University of the Philippines Diliman, launched a new regional research programme entitled "The Sustainability Initiative in the Marginal Seas of South and East Asia (SIMSEA)". This initiative aims to bring science to society living in the marine and coastal areas of South and East Asia, to ensure resilience, sustainability of ecosystem services, safety and security in the region. Furthermore, a Future Earth regional networking meeting took place at the Center for Sustainability Science at the Academy of Sciences located in Taipei in October 2014.

The ICSU Regional Office for Latin America and the Caribbean (ICSU ROLAC) organized a workshop on Future Earth for the International Scientific Unions from the region in order to discuss how they could initiate joint activities. Furthermore, in August 2014, a meeting with regional research funding agencies took place to enhance collaboration around common sustainability challenges. As a result, the Cuauhtémoc Forum was signed as a joint mechanism for the co-funding of collaborative projects on global environmental change in the Americas.

In September 2014, ICSU ROLAC, ISSC and the Brazilian Academy of Sciences also organized the meeting "Society and Nature: Dialogue between natural and social scientists on the challenges of sustainability" in Rio de Janeiro, Brazil. The meeting provided a platform for dialogue among scientists across disciplines around energy issues, socio-environmental risks, urban mobility, poverty and growing inequality. In Africa, significant efforts were made to enhance collaboration between the development aid and the global environmental change communities in order to mobilize support for integrated transdisciplinary research on global sustainability in the region. For instance, in May 2014, ICSU together with its Regional Office for Africa (ICSU ROA) convened a meeting with international, regional and national development aid agencies and research funding agencies at the Soweto campus of the University of Johannesburg. At the meeting, there was a consensus that collaboration between these two communities should be enhanced and that this dialogue should continue. The role of Future Earth as a potential vehicle for collaboration was highlighted.

In addition, ICSU ROA held an African Future Earth workshop involving ICSU National Members and Scientific Unions, funders and other partners from the region. A multi-stakeholder National Summit on Future Earth took place in South Africa. As a result of these efforts, ICSU ROA strengthened its collaboration, for example in organizing events and driving Future Earth activities, with the University of Pretoria, University of Johannesburg, University of South Africa and the Human Sciences Research Council, the African Academy of Science, as well as the Network of African Academies of Science. Furthermore, ICSU Regional Offices helped identify research priorities for Research Links grants of the Swedish Secretariat for Environmental Earth System Sciences (SSEESS). These grants aim to enhance collaboration within the field of global environmental change between Swedish scientists and regional scientists from networks of the ICSU Regional Offices. Four Swedish Consortia were awarded SSEESS research grants to work with scientists from Africa. The projects cover areas of water and climate change, urban air pollution in low-income settings, linking biodiversity, productivity and climate-change adaptation and mitigation, as well as interdisciplinary innovative knowledge for city resilience.

PARTICIPANTS OF THE SHORT COURSE ON URBANIZATION AND HEALTH: SYSTEMS APPROACHES, CO-ORGANIZED BY ICSU ROAP WITH UNU-IIGH IN KUALA LUMPUR



PHYTOPLANKTON BLOOM IN THE BARENTS SEA

BOSNIA AND HERZEGOVINAS FLOODS

HAZARDS AND DISASTERS

ICSU ROLAC in partnership with the International Consortium on Landslides, the International Geographical Union, the Mexican Academy of Sciences and the National Autonomous University of Mexico organized an international seminar on the IRDR methodology Forensic Investigations of Disasters (FORIN) to apply it to various contexts of disaster risk reduction in Latin America. ICSU ROLAC also carried out a study mapping research projects and best practices on disaster risk reduction undertaken by universities, research centres, the private sector and non-governmental organizations in the region.

In cooperation with the International Union of Psychological Science (IUPSYS), the Chinese Academy of Sciences and other partners, ICSU ROAP organized the third capacity development workshop on Psychological Intervention After Disasters (PIAD) in Mianyang, China, during which researchers from Asia examined their practice of psychological research on individuals and communities affected by disasters.

The Hazards and Disasters consortium of ICSU ROA was invited to a workshop in Uppsala University, Sweden, to strengthen collaboration with Swedish institutions on disaster risk reduction. Some of the members of this consortium also attended Preparatory Committee meetings in preparation for the World Conference on Disaster Risk Reduction in Japan in March 2015.

URBAN HEALTH AND WELLBEING

Several pilot projects on urban health and wellbeing applying the systems approach were developed in Thailand, Taipei and China. These projects were presented at various international meetings, including the International Conference of the Urbanization and Global Environmental Change (UGEC) programme.

ENGAGING YOUTH

In 2014, ICSU ROAP was selected as a Sending Organization for the Sakura International Exchange Programme in Science, which aims to enhance scientific exchange among young scientists from various countries in Asia and Japan. The main function of the Sending Organization is to recommend researchers as participants of this programme. The next scientific exchange will focus on Future Earth.

In the LAC region, ICSU ROLAC strengthened links with the Global Young Academy (GYA). Future Earth was promoted among young scientists from the region at the 4th GYA International Conference.

In Africa, ICSU ROA promoted the young scientist group ANSWER at various meetings on the continent, including at the Africa Young Graduates and Scholars Conference, resulting in new members joining the group.

OTHER ACTIVITIES

As an outcome of the joint project between DIVERSITAS, ICSU ROLAC, the International Union of Biological Sciences and the Swiss Academy of Sciences, the report Access and Benefit Sharing in Latin America and the Caribbean: A science-policy dialogue for academic research was published as a guide to promote dialogue between researchers working with genetic resources and decision-makers who are the focal points responsible for implementing international regulations of Access and Benefit Sharing in LAC.

COMMUNICATIONS

ICSU Communications in 2014 had a strong science-for-policy focus. Activity was spread across many fronts, including the three UN processes that will converge in 2015, namely the post-2015 disaster risk framework, the Sustainable Development Goals and climate change.

The Council is one of the co-organizers of a major climate science conference in Paris in 2015, "Our Common Future Under Climate Change", and ICSU has played a key role as advisor to the conference on a range of areas, including communications.

As part of the support for the importance of science in the climate change negotiations in 2015, a dedicated science for policy blog, "Road to Paris" was launched in July. The blog provides original content on issues at the nexus between science, economics and policy with an eye to COP21 in Paris, but also the other two major UN processes of 2015: Sustainable Development Goals and the post-2015 framework on disaster risk reduction. It has gained a dedicated following among key actors in the UN and its agencies, leading climate and environmental journalists, policymakers, think tanks and NGOs. Content partnership agreements have been agreed with leading news sites such as Reuters AlertNet, Climate Central and China Dialogue.

In 2014, ICSU was also active on disaster risk reduction, and as the organizing partner for the Major Group on Science at the UN, followed the two preparatory meetings for the 2015 World Conference on Disaster Risk Reduction in Sendai and sought to highlight the importance of this process alongside the climate change and post-2015 processes through social media and content on the Road to Paris blog.

In August, ICSU convened the first global conference of science advice to governments in Auckland, just before its General Assembly. The conference generated a lot of interest worldwide, thanks to coverage in Nature, Scientific American and The Guardian prior to and during the conference, as well as a highly engaged conversation online via social media activity from participants.

The General Assembly in Auckland was another highlight for communications, thanks to a very engaged group of Early Career Scientists who joined as panellists. They live-tweeted the proceedings, providing unprecedented openness and transparency, and sparked great online interest across the globe, raising ICSU's profile and visibility, notably in New Zealand.

A number of new publications were rolled out in 2014 – a new brochure for CFRS and an updated flyer for ICSU – and a video from the Villa Vigoni Young Scientists Networking Conference was produced.

WWW.ROADTOPARIS.INFO

VOTING UNDERWAY AT THE 31ST ICSU GENERAL ASSEMBLY IN AUCKLAND, NEW ZEALAND

ADMINISTRATION AND GOVERNANCE

FINANCIAL SUMMARY

STATEMENT OF INCOME AND EXPENDITURE

International Council for Science (ICSU) for the period 1 January to 31 December 2014

INCOME	EUROS
Membership dues	
Members	2.325.944
Scientific Unions	185.022
Scientific Associates	11.500
Provision Arrears	-359.688
NSF support for WCRP	-
Grants from NSF	405.481
France	500.000
Other grant for IRDR RIO+20 Global Sustain.	1.519.825
Ruentex donation	717.360
Other income	118.889
Cancellation other provision	114.959
Investment income	28.764
Total income	5.568.056

EXPENDITURE	EUROS
Policy committees	291.755
Joint initiatives	1.682.694
ICSU Regional Offices	417.979
Grant Programme	239.000
Special initiatives	417.107
Governance meetings	536.656
Outreach	447.773
Policy & administrative support	1.024.553
Contingency/Provision	69.696
Other expenses	8.287
Investment charges & losses*	35.378
Total expenditure	5.170.879
Excess of income over expenditure	397.177

*** Including provision for unrealized losses on Portfolio for a total amount of 9,7K €**

BALANCE SHEET

International Council for Science (ICSU) for the period 1 January to 31 December 2014

ASSETS	EUROS
Bank & cash balances	2.307.968
Marketable securities	1.471.158
NSF & UNESCO, funds for IRDR & RIO+20	621.839
Others assets	67.482
Fixed assets	47.494
Total assets	4.515.942

LIABILITIES	EUROS
External funds allocated	707.576
Sundry creditors & accruals	566.630
Provision / Retirement	316.973
Total liabilities	1.591.178

RESERVES	EUROS
Mandatory reserve	1.500.000
General fund / Retained earnings	1.027.587
Total reserves	2.527.587
Net Result	397.177

EXECUTIVE BOARD 2014 – 2017

Gordon McBean President
David Black Secretary-General
Yuan-Tseh Lee Past-President
Jinghai Li Vice-President for Scientific Planning and Review
Michael Clegg Vice-President for External Relations
Barbara Erazmus Treasurer
Daya Reddy President-Elect

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Orhan Altan
John Buckeridge
Manuel de Léon
Cheryl de la Rey

FROM NATIONAL MEMBERS:
John Ball (United Kingdom)
Raghavendra Gadagkar (India)
Nicole Moreau (France)
Kazuyuki Tatsumi (Japan)

SECRETARIAT

MANAGEMENT
Steven Wilson (to 03/10/2014) Executive Director
Peter Liss (from 03/10/2014) Interim Executive Director
Tish Bahmani Fard Assistant Executive Director
Carthage Smith (to 30/05/2014) Deputy Executive Director
Clare Thirlway Head of Human Resources
Denise Young Head of Communications

ENVIRONMENT AND SUSTAINABLE DEVELOPMENT
Gisbert Glaser Senior Advisor
Howard Moore (until 30/09/2014) Senior Advisor
Nora Papp (from 06/01/2014) Administrative Officer
Katsia Paulavets Science Officer
Rohini Rao Administrative Officer
Anne-Sophie Stevance Science Officer

SCIENTIFIC PLANNING AND SPECIAL PROJECTS
Maureen Brennan Administrative Officer
Vivien Lee (to 12/09/2014) Assistant Science Officer on secondment

COMMUNICATION AND INFORMATION TECHNOLOGY
Yun-Kang Ahn IT Officer
Johannes Mengel Online Editor/Communications Officer

ADMINISTRATIVE STAFF
Alexandra Guennec Payroll and HR Administration Officer

Frederica Kostadinoff (to 31/07/2014) Administrative Officer Finance/Caretaker
Eric Leparmentier General Services
Natacha de Marchi Accountant
Catherine To (from 15/09/2014) Accounts Assistant

COMMITTEE ON FREEDOM AND RESPONSIBILITY IN THE CONDUCT OF SCIENCE
Roger Pfister Executive Secretary CFRS, 50% time based at the Swiss Academy of Sciences

FUTURE EARTH INTERIM SECRETARIAT
Frans Berkhout Interim Director on secondment
Diana Greenslade Science Officer
Lizzie Sayer Communications Coordinator
Miia Ylöstalo-Joubert Administrative Officer

REGIONAL OFFICE FOR AFRICA
Edith Madela-Mntla Director
Richard Glover Programme Specialist in Biological Sciences
Bongani Mahlalela Communications Officer
Hazael Naidoo Administrative Assistant
Daniel Nyanganyura Programme Specialist in Physics, Mathematics and Engineering Sciences

REGIONAL OFFICE FOR ASIA AND THE PACIFIC
Mohd Nordin Hasan Director
Tengku Sharizad Tengku Dahlan Senior Science Officer
Mohd Hizamddin Jaafar Administrative Officer

REGIONAL OFFICE FOR LATIN AMERICA AND THE CARIBBEAN
Manuel Limonta Director
Angélica Bucio Communications Officer
Camilo García Administrative Officer
Ángela Guzmán Science Officer (from January 2014)

NATIONAL MEMBERS

ICSU has 120 National Members covering 140 countries. These Members provide input, from a national, multidisciplinary 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.

Albania Academy of Sciences
Angola Foundation of Science and Development
Argentina National Scientific and Technological Research Council (CONICET)
Armenia National Academy of Sciences of the Republic of Armenia
Australia Australian Academy of Science
Austria Die Österreichische Akademie der Wissenschaften
Azerbaijan Azerbaijan National Academy of Sciences**
Bangladesh Bangladesh Academy of Sciences
Belarus National Academy of Sciences (NASB)**
Belgium Royal Academies for Science and the Arts of Belgium (RASAB)
Bolivia Academia Nacional de Ciencias de Bolivia (ANCB)**
Bosnia & Herzegovina: ANUBiH Academy of Sciences and Arts of Bosnia and Herzegovina
Bosnia & Herzegovina ANURS Academy of Sciences and Arts of the Republic of Srpska
Botswana Ministry of Infrastructure Science and Technology**
Brazil Academia Brasileira de Ciências (ABC)
Bulgaria Bulgarian Academy of Sciences (BAS)
Burkina Faso Centre National de la Recherche Scientifique et Technologique**
Cameroon Cameroon Academy of Sciences
Canada National Research Council of Canada
Caribbean Caribbean Academy of Sciences (CAS)*
China: CAST China Association for Science and Technology (CAST)

China: Taipei Academy of Sciences located in Taipei
Colombia Academia Colombiana de Ciencias Exactas, Fisicas y Naturales
Costa Rica Academia Nacional de Ciencias
Côte d'Ivoire Académie des Sciences, des Arts, des Cultures d'Afrique et des Diasporas Africaines (ASCAD)**
Cuba Academia de Ciencias de Cuba
Czech Republic Academy of Sciences of the Czech Republic
Denmark Royal Danish Academy of Sciences and Letters
Dominican Republic Academy of Sciences of the Dominican Republic
Egypt Academy of Scientific Research and Technology (ASRT)
El Salvador Vice Ministry of Science and Technology
Estonia Estonian Academy of Sciences
Ethiopia Ethiopian Science and Technology Agency**
Finland Delegation of the Finnish Academies of Science and Letters
France Académie des Sciences
Georgia Georgian Academy of Sciences*
Germany Deutsche Forschungsgemeinschaft (DFG)
Ghana Ghana Academy of Arts & Sciences**
Greece Academy of Athens
Guatemala Academia de Ciencias Médicas Fisicas y Naturales de Guatemala*
Hungary Hungarian Academy of Sciences
India Indian National Science Academy
Indonesia Indonesian Institute of Sciences (LIPI)
Iran, Islamic Rep. of University of Tehran
Iraq Ministry of Science and Technology
Ireland Royal Irish Academy
Israel Israel Academy of Sciences and Humanities
Italy Consiglio Nazionale delle Ricerche
Jamaica Scientific Research Council
Japan Science Council of Japan
Jordan Royal Scientific Society*
Kazakhstan National Academy of Sciences of the Republic of Kazakhstan*
Kenya Kenya National Academy of Sciences
Korea, Democratic People's Republic of State Academy of Sciences**
Korea, Republic of National Academy of Sciences of the Republic of Korea
Lao, PDR Lao National Science Council**
Latvia Latvian Academy of Sciences
Lebanon National Council for Scientific Research
Lesotho Department of Science and Technology
Lithuania Lithuanian Academy of Sciences
Luxembourg Fonds National de la Recherche
Macedonia, Former Yugoslav Rep. of Macedonian Academy of Sciences and Arts
Madagascar Ministère de l'Enseignement Supérieur et de la Recherche Scientifique*
Malawi National Research Council of Malawi
Malaysia Academy of Sciences Malaysia
Mauritius Mauritius Research Council
Mexico Academia Mexicana de Ciencias
Moldova Academy of Sciences of Moldova
Monaco, Principauté de Centre Scientifique de Monaco
Mongolia Mongolian Academy of Sciences
Montenegro Montenegrin Academy of Sciences and Arts
Morocco Centre National de la Recherche Scientifique et Technique
Mozambique Scientific Research Association of Mozambique (AICIMO)**
Namibia Ministry of Education: Directorate of Research, Science and Technology
Nepal Royal Nepal Academy of Science and Technology
Netherlands Koninklijke Nederlandse Akademie van Wetenschappen
New Zealand Royal Society of New Zealand
Nigeria Nigerian Academy of Science
Norway Norwegian Academy of Sciences and Letters
Pakistan Pakistan Association for the Advancement of Science
Panama Universidad de Panama
Peru Academia Nacional de Ciencias
Philippines National Research Council
Poland Polish Academy of Sciences
Portugal Academia das Ciencias de Lisboa
Romania Academia Româna
Russian Federation Russian Academy of Sciences
Rwanda Kigali Institute of Science and Technology (KIST), Rwanda**
Saudi Arabia, Kingdom of King Abdulaziz City for Science and Technology (KACST)
Senegal Association des Chercheurs Sénégalais**
Serbia Serbian Academy of Sciences and Arts
Seychelles Seychelles Centre for Marine Research and Technology
Singapore Singapore National Academy of Science
Slovak Republic Slovak Academy of Sciences
Slovenia Slovenian Academy of Sciences and Arts*
South Africa National Research Foundation (NRF)
South Pacific University of the South Pacific
Spain Ministerio de Ciencia y Innovacion

Sri Lanka National Science Foundation
Sudan, Republic of National Centre for Research**
Swaziland National Research Council**
Sweden Royal Swedish Academy of Sciences
Switzerland Swiss Academy of Sciences
Tajikistan Academy of Sciences of the Republic of Tajikistan**
Tanzania Tanzania Commission for S&T
Thailand National Research Council of Thailand
Togo Chancellerie des Universités du Togo
Tunisia Université Tunis El Manar*
Turkey Scientific and Technical Research Council of Turkey**
Uganda Uganda National Council for Science and Technology (UNCST)
Ukraine National Academy of Sciences
United Kingdom Royal Society
United States National Academy of Sciences
Uruguay Comisión Consejo Nacional de Innovacion Ciencia y Tecnologia (CONICYT)
Uzbekistan, Republic of Uzbekistan Academy of Sciences**
Vatican City State Pontificia Academia Scientiarum**
Venezuela Fondo Nacional de Ciencia, Tecnología e Innovación**
Vietnam Vietnam Union of Science and Technology Associations**
Zambia Zambia Academy of Sciences**
Zimbabwe Research Council of Zimbabwe

*National Associate
**National Observer

SCIENTIFIC UNIONS

The 32 international Scientific Union Members provide the disciplinary backbone of ICSU. They play a central role in bringing together scientists from all parts of the world to consider the issues of particular interest to individual disciplines.

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

*Observer as of 2012

INTERDISCIPLINARY BODIES

THEMATIC BODIES

COSPAR Committee on Space Research
IRDR Integrated Research on Disaster Risk
PECS Programme on Ecosystem Change and Society
SCAR Scientific Committee on Antarctic Research
SCOR Scientific Committee on Oceanic Research
SCOSTEP Scientific Committee on Solar-Terrestrial Physics
URBAN HEALTH

GLOBAL ENVIRONMENTAL CHANGE PROGRAMMES

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

MONITORING/OBSERVATION BODIES

GCOS Global Climate Observing System
GOOS Global Ocean Observing System
GTOS Global Terrestrial Observing System

DATA AND INFORMATION BODIES

CODATA Committee on Data for Science and Technology
INASP International Network for the Availability of Scientific Publications
IUCAF Scientific Committee on Frequency Allocations for Radio Astronomy and Space Science
WDS World Data System

SCIENTIFIC ASSOCIATES

TWAS The World Academy of Sciences
ACAL Academia de Ciencias de America Latina
FASAS Federation of Asian Scientific Academies and Societies
IASC International Arctic Science Committee
IAHR International Association of Hydraulic Engineering and Research
ICA International Commission for Acoustics
ICO International Commission for Optics
ICIAM International Council for Industrial and Applied Mathematics
ICLAS International Council for Laboratory Animal Science
ICSTI International Council for Scientific and Technical Information
IFIP International Federation for Information Processing
IFLA International Federation of Library Associations and Institutions
IFSM International Federation of Societies for Microscopy
FIG International Federation of Surveyors
IFS International Foundation for Science
IIASA International Institute for Applied Systems Analysis
IUVSTA International Union for Vacuum Science, Technique and Applications
IWA International Water Association
PSA Pacific Science Association
4S Society for Social Studies of Science
UIS Union Internationale de Spéléologie

IMPRINT

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