International Science Council

The global voice for science

ANNUAL REPORT 2020

Work with the ISC to advance science as a global public good.

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Front Cover Image: Workers add finishing touches to a mural outside the Tambaram railway station, India, to raise awareness and promote vaccination against COVID-19. Arun Sankar/AFP.

The vision of the International Science Council is to advance science as a global public good. Scientific knowledge, data and expertise must be universally accessible and their benefits universally shared. The practice of science must be inclusive and equitable, as should opportunities for scientific education and capacity development.

The International Science Council (ISC) is a non-governmental organization with a unique global membership that brings together 40 international scientific Unions and Associations and over 140 national and regional scientific organizations including Academies and Research Councils.

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A MESSAGE FROM THE PRESIDENT AND CEO

Photo: Daya Reddy and Heide Hackmann

2020 was a year of unprecedented global disruption. Over the past twelve months, the COVID-19 pandemic has turned personal and professional lives upside down, and resulted in tragic loss of life. The events of the past year have exposed and, in some cases, amplified divisions and fault lines in our societies, and have thrown a spotlight on science in ways that are unparalleled in our lifetimes. The role of scientists in society – both in providing advice to governments and in promoting public understanding of science – has been scrutinized as never before. This comes with profound challenges, but also provides opportunities.

Faced with a novel coronavirus, the scientific community stepped up to the challenge of rapidly building the knowledge base on the virus and how to respond, developing a vaccine in record time. The pandemic has revealed new forms of solidarity and inventiveness in the scientific community, underpinned by international scientific collaboration, scientific freedom and open science. Inter- and transdisciplinary approaches, which draw on knowledge and expertise from across the natural and social sciences, as well as from policy and wider publics, have shown their value in helping to understand the measures required to help to contain the pandemic and limit its effects.

For the International Science Council, which is uniquely positioned as a convenor of the scientific community and a bridge to different stakeholder communities, the pandemic has forced us to reflect on how the Council and its Members could best support those on the frontlines of pandemic response. Recognizing the extent of the challenge and the crucial role of science, the ISC launched an online COVID-19 Global Science Portal to provide access to relevant information from ISC Members, partners and affiliated programmes. The ISC's community of Members and wider networks responded energetically, sharing hundreds of initiatives and publications that were showcased through the portal.

Responding to the pandemic has forced the ISC to rethink the way it interacts with ISC Members and partners, mirroring the kinds of disruption to work practices that have occurred across science institutions. It has been a challenging year, but has also resulted in great creativity. Now we must ask whether innovations born of necessity in 2020 – such as greater use of virtual conferencing tools or journal paywalls being lowered – should be sustained over the longer term, and what the 'new normal' for scientific workplaces and policy for science will look like.

The extent of the disruption, touching all aspects of our lives, highlights the need for an integrated, interdisciplinary response to the crisis. As we write this letter in June 2021, the pandemic is a long way from being over. As well as responding to the immediate threat, decisions to be made in the coming year need to be informed by mid- and long-term thinking that can show the way forward to achieving a fair and optimistic end to the pandemic. The ISC has launched a COVID-19 scenarios project to support this goal.

We have also been compelled to review our thinking and approaches to the global challenges captured in Agenda 2030, and the threats associated with climate change. The urgency that has characterized responses to the pandemic has been a lesson in energetic response, with calls to display the same levels of commitment and resolve in addressing the range of global challenges. The ISC has taken this call to heart in determining its actions over the short to medium term.

Notwithstanding the threat posed by the pandemic to derail the Council's strategic priorities, the ISC has over the last year made considerable progress in pursuing programmes in areas including those associated with the digital revolution, the interfaces between science, policy and the public, and in enabling effective global responses to the imperatives of open science.

As the world seeks to recover, with less than a decade to go to reach the goals of Agenda 2030, this is a crucial moment to redouble our efforts to support societies in transforming towards a more equitable, more sustainable future. Realizing these kinds of transformations will require systemic change, and for scientists to work closely with different stakeholder communities. For the ISC, it is a timely moment to reflect on all of our ongoing projects and to explore new activities. The Council's second General Assembly, which takes place in mid-October 2021, will provide an opportunity to discuss the new global landscape for science, and to think strategically about initiatives that can continue to build on the ISC's work to advance science as a global public good. We'd like to thank all of the ISC's Members and partners for their continued support, and look forward to working together in the future.

Daya Reddy
President

Heide Hackmann
Chief Executive Officer (CEO)

2020 TIMELINE

30 JANUARY
World Health Organization declares the COVID-19 outbreak a Public Health Emergency of International Concern

11 FEBRUARY
International day of women and girls in science

11 FEBRUARY
Gender Gap in Science project publishes preliminary report

12 FEBRUARY
ISC announces Memorandum of Understanding with UNESCO's Intergovernmental Oceanographic Commission (IOC) in support of the UN Ocean Decade

17 FEBRUARY
Internet pioneer Vinton G. Cerf becomes a Patron of the ISC

7 MARCH
ISC Presents podcast launches with 'Women in Science' series

8 MARCH
International Women's Day

11 MARCH
World Health Organization declares COVID-19 a pandemic

25 MARCH
ISC launches COVID-19 portal to provide an overview of responses to the COVID-19 pandemic by the ISC community

1 APRIL
Daya Reddy and ISC patron Mary Robinson release a statement on tackling climate change with urgency

14 APRIL
'If ever it was vital to listen to the scientists, it is now', writes ISC President Daya Reddy in a message to the Council's Members

15 APRIL
Reflections on constructing a human-centred development paradigm, a Statement by ISC Patron Ismail Serageldin, launches the 'Rethinking Human Development' joint initiative by the ISC and the United Nations Development Programme

30 APRIL
ISC LIRA2030 programme publishes *Advancing the 2030 Agenda in African cities through knowledge co-production: Urban experiments led by early-career African scientists*.

25 MAY
Death of George Floyd in police custody sparks demonstrations worldwide against anti-Black racism.

3 JUNE
ISC launches Global Science TV in partnership with the Australian Academy of Science

4 JUNE
ISC publishes draft Working Paper on Open Science for the 21st Century.

9 JUNE
ISC President and CEO release statement on combating systemic racism and other forms of discrimination.

10 JUNE
Shutdown STEM movement closes universities, research institutes and other scientific workplaces worldwide, including the ISC's Paris headquarters

16 JUNE
The ISC Regional Office for Africa launches the African Scientists Directory in partnership with the Academy of Science of South Africa (ASSAf).

24 JUNE
In collaboration with IAP and TWAS, the ISC launches a new initiative to develop a coordinated response to the increasing number of displaced researchers

7 JULY
As the High-level Political Forum on Sustainable Development begins, the ISC publishes a position paper as co-organizer of the Scientific and Technological Community Major Group at the United Nations

28 JULY
ISC publishes *Hazard Definition & Classification Review* in partnership with UNDRR and with the input of many ISC members, including disciplinary unions.

5 NOVEMBER
ISC hosts Virtual Circle Table on Combating Systemic Discrimination in Science at Falling Walls.

9 NOVEMBER
ISC publishes *Conversations on Rethinking Human Development*, and an accompanying multi-media website in readiness for a global virtual dialogue on World Science Day.

10 NOVEMBER
World Science Day

10 NOVEMBER
UN and partners, including the ISC, release new Research Roadmap to guide recovery from COVID-19

27 NOVEMBER
ISC announces partnership with Sustainability in the Digital Age initiative

16 DECEMBER
Global Carbon Budget 2020 Finds Record Drop in Emissions

22 DECEMBER
The international scientific community has 'risen to the occasion' during this turbulent year, writes ISC President Daya Reddy in an end-of-year message to ISC Members

1 COVID-19: TURNING THE CRISIS INTO COLLABORATIVE OPPORTUNITY

A nurse vaccinates a man against COVID-19 in Colombia. Photo: Joaquin Sarmiento/AFP

In mid-March, Daya Reddy and Heide Hackmann wrote a message to ISC Members and the broader international scientific community on the unfolding COVID crisis:

'We must think critically about how we are responding to this public health emergency, which in turn could become an economic and social emergency. It is a moment to remind policy-makers of the importance of evidence-based decisions, and to work with them in preparing for other upheavals, current and future.'

The predictions were correct – it quickly became more than a health emergency, with existing economic and social vulnerabilities coming to the fore.

'Overnight, the ISC's power to convene expert minds in the traditional way has been stymied by a virus. We were unprepared for this and it is costing us dearly. Beyond the financial implications, we lament the loss of opportunities to exchange ideas, strategize, consolidate partnerships, and develop joint efforts. At the same time, this external threat forces us to rethink and to find new, equally effective ways to convene our expert communities.' Daya Reddy, Heide Hackmann

'The COVID-19 disaster is a manifestation of what the international scientific community has recognised for years: that in an increasingly interdependent world, our lifestyles, our choices mean that hazards are interwoven and spread throughout communities, societies and economies in complex ways that lead to systemic and cascading risks.' Mami Mizutori, UN Special Representative of the Secretary-General for Disaster Risk Reduction at UN Office for Disaster Risk Reduction, and Heide Hackmann, writing for the Thomson Reuters Foundation.

In light of the pandemic, the Council had to pivot some of its Action Plan activities, and the Governing Board rapidly set up an oversight group consisting of Geoffrey Boulton, Pearl Dykstra and Elisa Reis, along with members of staff of the headquarters. The group acted as a sounding board for new COVID-19 projects that the ISC might lead, co-lead or lend its patronage to.

The Council launched the COVID-19 Global Science Portal in response to the need for an online space in which ISC Members could engage with each other on scientific debates around the novel virus. Its success was due to strong engagement from Members and Affiliated Bodies, who shared more than 150 submissions ranging from statements and announcements to topical discourse and journal articles. The Portal accounted for nearly 8% of all webpage views in 2020, becoming the Council's second most visited page after the homepage.

The ISC co-led the Corona Sustainability Compass science blog launched in April in partnership with the German Environment Agency (Umweltbundesamt – UBA), Future Earth and Foundation 2°. The blog promoted dialogues that considered the bigger challenges ahead: the impact of global warming, the excess consumption of planetary resources and the loss of biodiversity, taking the current crisis as a unique opportunity to rethink business models and shape a new start for more sustainable and future-proofed economies.

The Committee on Data (CODATA), the World Data System, the Research Data Alliance and Global Open FAIR joined forces to optimize the research data ecosystem, launching a COVID-19 appeal, Data Together, as their first joint action. Data Together called on the data community to unite existing initiatives and accelerate the development of core services to help meet the challenges of the crisis.

The International Network for Government Science Advice (INGSA) called for a network of global volunteers to build a Policy-Making Tracker that would record how (not necessarily which) policy interventions were being made by various national and subnational (state, provincial) governments across the world. The ISC promoted this widely as part of its Science-for-policy mission.

'The aim of the INGSA policy-making tracker is to understand the decision-making process in each government's response to COVID-19. In particular, we want to focus on whether justifications are given for a policy announcement, what person or group is providing the advice or evidence, and whether there is any evidence cited in the policy announcement.' Lara Cowen, INGSA Trustee and former INGSA Executive Officer

The ISC joined the World Pandemic Research Network (WPRN) as a supporting partner in May 2020. The platform serves as an edited, open-source global directory of projects, initiatives and resources on the societal and human impacts of the COVID-19 pandemic, with more than 1,000 projects listed from 380+ institutions.

In late 2020 the ISC took stock of its projects and partnerships and decided to consolidate its work on COVID-19 into one major project that could address a knowledge gap in the policy-making process, by outlining a range of scenarios over the mid and long term that can assist our understanding of the options for achieving an optimistic and fair end to the pandemic. The resulting COVID-19 Scenarios Project commenced towards the end of 2020. It is led by a global oversight group of experts in natural, social and economic sciences, with the World Health Organization and United Nations Office for Disaster Risk Reduction (UNDRR) as observers. The project aims to finalize a report in September 2021.

Bouncing Forward Sustainably – the IIASA-ISC Consultative Science Platform

Starting in May 2020, the ISC and the International Institute for Applied Systems Analysis (IIASA) launched the IIASA-ISC Consultative Science Platform: Bouncing Forward Sustainably: Pathways to a post-COVID World. The platform drew on the combined strengths, expertise and large scientific communities of the two organizations to come up with a set of insights and recommendations. The insights resulted from a series of twelve consultative meetings with more than 200 thematic experts and thought leaders from the scientific community and private sector from all regions of the world.

The platform was informed and supported by an advisory board under the patronage of the former UN Secretary-General, HE Ban Ki-moon, and Chair of The Elders, HE Mary Robinson. The initiative also included partners such as the Ban Ki-moon Centre, Future Earth, the Earth League and the Vienna Energy Forum, and operated within the goals and objectives set out in existing global agreements such as the Paris Agreement, the 2030 Agenda for Sustainable Development, the New Urban Agenda and the Sendai Framework.

The results are showcased on the multimedia website *Transformations Within Reach: Pathways to a Sustainable and Resilient World*, which shares the findings and recommendations from the consultative platform through five reports, as well as webinars and interviews. The website includes related content such as 'A sustainable post-COVID future', published by Heide Hackmann and Leena Srivastava, IIASA Deputy Director General for Science, in *Nature Sustainability*.

The four main themes of the consultation were:

1. **Governance for sustainability**, chaired by Adebayo Olukoshi, Director for Africa and West Asia at the International Institute for Democracy and Electoral Assistance. The resulting report provides recommendations on enhancing governance for sustainability and risk management at different levels of governance: global, national-local systems, and multilevel governance which connects global and national-local levels.
2. **Strengthening science systems**, chaired by Lidia Brito, Director of UNESCO's Regional Bureau for Sciences in Latin America and the Caribbean. The outcomes of this consultation argue for changes that address the need to

strengthen transdisciplinary research on critical risks; enhance the diffusion of knowledge within the science system; increase the capacity of the science system to respond rapidly with high-quality research; improve the science-policy interface; and enhance public understanding and trust in science.

3. **Sustainable energy**, chaired by Hans Olav Ibrekk, Policy Director, Section for Energy and Climate, Norwegian Ministry of Foreign Affairs and Co-Facilitator, Technical Advisory Group, SDG 7. The report argues that actionable transformations should address the drivers of demand and consumption through measures like remote working, digitalization, and the reshaping of urban spaces and their use; maximizing sustainable energy independence; and influencing behaviour towards responsible consumption.
4. **Resilient food systems**, chaired by Ismail Serageldin, Founding Director and Emeritus Librarian of the Bibliotheca Alexandrina and ISC Patron. The resulting report argues that the emphasis on efficiency, which has been driving to a large part the evolution of food systems, needs to be counter-balanced by a greater emphasis on resilience and equity concerns.

The synthesis report asks how the multi-trillion dollar COVID-19 recovery packages can be channelled to rebuild a world that is simultaneously more sustainable and resilient. The answer, it says, is that only systemic thinking and approaches can ensure that this investment can create the structural changes required for longer term sustainability and resilience.

A possible second phase of the project is under investigation with IIASA and will be discussed by the Advisory Board in mid-2021.

This project was informed and supported by ISC Patrons Mary Robinson, who chaired the Advisory Board, and Ismail Serageldin, who chaired the consultation on Resilient food systems.

SPECIAL ENVOY FOR SCIENCE IN GLOBAL POLICY

The ISC was honoured to have Flavia Schlegel serve as its first Special Envoy for Science in Global Policy. Appointed in 2019 to strengthen the ISC's vision to advance science as a global public good, Flavia Schlegel assisted in building the ISC's identity and presence at the highest political levels within the UN and other global policy fora, such as the G20. She played a pivotal role in the IIASA-ISC Consultative Science Platform, Bouncing Forward Sustainably: Pathways to a post-COVID World, and the G20's science programme, Foresight: Science for Navigating Critical Transitions hosted by Saudi Arabia.

The Special Envoy position ended at the close of 2020, but the model for such a role opens many future possibilities for the ISC.

'We need a "multilateral science" organization, bringing the full power, creativity and knowledge of the science community in all its diversity to the table. Success in overcoming the pandemic will not lie in one discipline or in one approach in one region or country, but in bringing the natural and social sciences, the scientists, and the policy makers closer together across the globe. In this way the ISC plays a pivotal role in contributing to set norms and standards, or global agreement on how to cooperate internationally in a more and more polarized world.' Flavia Schlegel, Special Envoy for Science in Global Policy

Rethinking Economics in the Light of COVID and Future Crises

During this pandemic year, the Council held a number of online events that expanded the reach of ISC Members' scientific endeavours by inviting a global audience to webinars that brought together academics, practitioners, civil society thought leaders and students.

Moderated by Craig Calhoun, Rethinking Economics fostered discussion on today's global challenges with presentations from leading economic thinkers Sam Bowles and Wendy Carlin, and responses from Danielle Allen, Luc Soete and Jayati Ghosh. Its success led to the ISC adopting a similar approach for a future webinar series that provides engagement with scholars and contemporary thinkers on topics related to the scientific priorities of ISC Members.

"This was an excellent webinar. It offered a novel and theoretically grounded discussion on much needed new directions for rethinking economics. Panelists and discussants also offered a reflection on how new approaches to economics can help tackle the consequences of the current crisis. I would recommend it to academics and students across all social science disciplines". Maria Savona, Professor of Innovation and Evolutionary Economics at SPRU, University of Sussex, UK; and Professor of Applied Economics at the Department of Economics and Finance, Luiss University, Rome, Italy

"This is one of the best webinars I have listened to this year. It was a great experience listening to Prof. Samuel Bowles and Prof Wendy Carlin present their perspectives about how the COVID-19 pandemic will accelerate acceptance of a new paradigm in economics. I would highly recommend it to students studying economics". Zachary Gitonga, Postdoc research fellow at Research Unit on Economics of Excisable Products (REEP), School of Economics, South Africa

COVIDEA: Moving learning societies onto a more sustainable development path

The COVID Education Alliance (COVIDEA) was created in response to a major challenge exposed by the COVID-19 pandemic: how to make education systems agile in the face of external shocks and fully adapted to the digital transformation. One of the key knowledge gaps the Alliance is keen to address is whether the digital tools and technological options being developed today are affordable and accessible for all, and whether they can support achievement of the Sustainable Development Goals (SDGs).

The ISC used its convening role to help build the Alliance by bringing together international thought leaders with expertise in digital education. The Alliance, convened by the Platform for Transformative Technologies (P4TT) and the Foundation for Global Governance and Sustainability (FOGGS), has produced a primer suggesting five goals for a new and holistic education systems. The goals can be adapted to different cultural and socio-economic contexts, and could be recommended for use as part of the curriculum. The success of this initiative has been demonstrated by an invitation from the Global Enabling Sustainability Initiative (GeSI) to support COVIDEA to co-develop the Digital with Purpose metrics framework for SDG 4 – Quality Education.

Photo:
Marc A. Herman

GLOBAL RESEARCH PROGRAMME ON INEQUALITY (GRIP)

GRIP is a radically interdisciplinary research programme that views inequality as a fundamental challenge to human wellbeing, and works to foster co-designed processes of knowledge creation to understand and address the multiple dimensions of rising inequalities.

The programme was founded in late 2019, and had planned a year of research activities for 2020 – many of which involved in-person meetings and conferences. When the pandemic was declared in March 2020, GRIP had to shift gears. In addition to disrupting planned activities, the pandemic prompted deep reflection on how to approach inequality as a connected, global and multidimensional phenomenon.

Despite the challenging circumstances, GRIP mobilized and initiated new activities at the same time as consolidating its institutional and organizational structures. Outputs such as the COVID-19 Miniseries and series of interviews on Inequality in the (Post-) Pandemic City helped to build the GRIP network and reach new audiences.

Find out more about GRIP in their 2020 Annual Report.

2 FREEDOM AND RESPONSIBILITY IN SCIENCE

Photo: vincent desjardins

The principle that the free and responsible practice of science is fundamental to scientific advancement and human and environmental wellbeing is enshrined in the Council's statutes. Within the Council, work to advocate for the free and responsible practice of science is overseen by the Committee for Freedom and Responsibility in Science (CFRS).

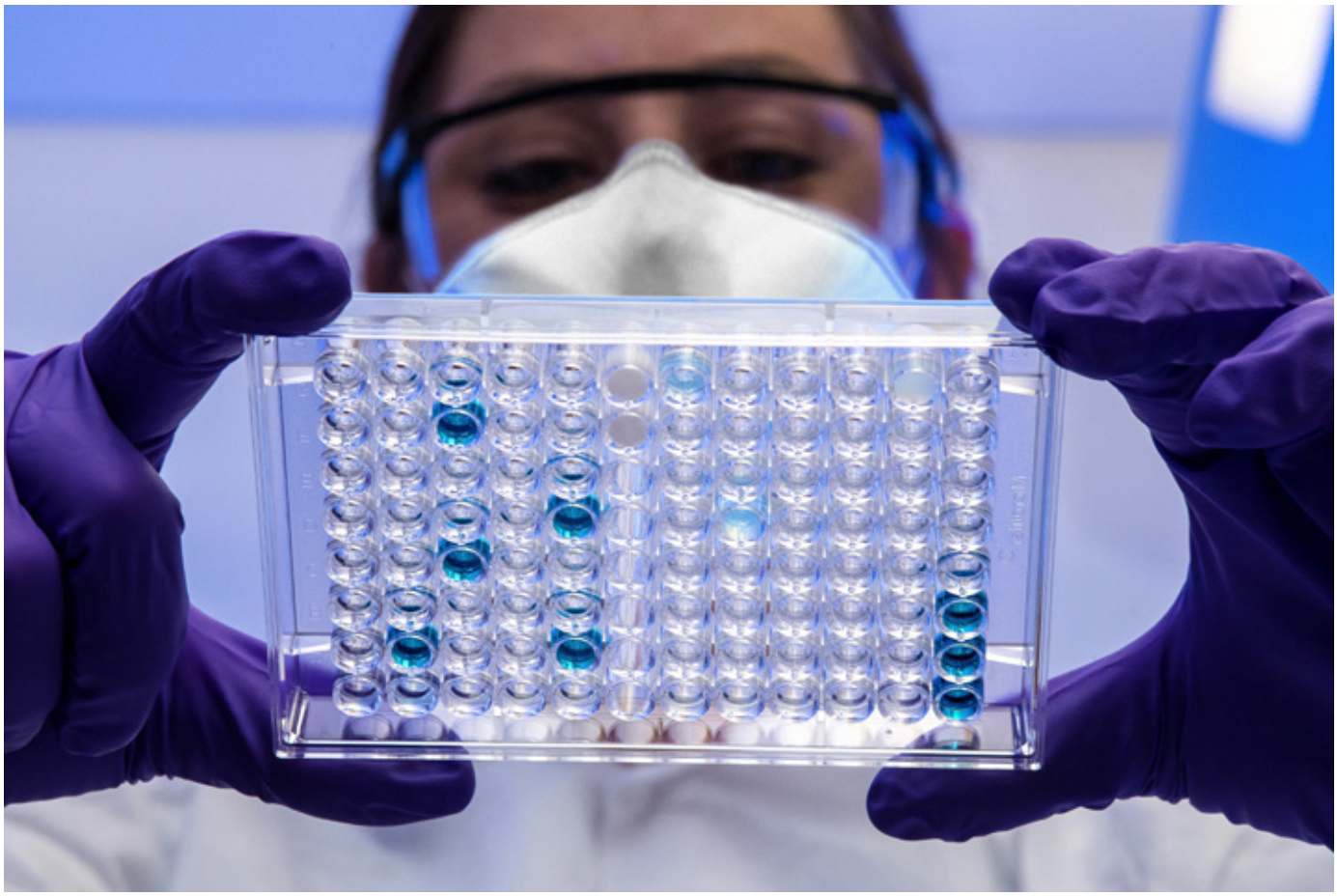


Photo: CDC, Unsplash.

Advocating for and defending scientific freedom and the responsible practice of science

The work of CFRS expanded considerably in 2020, both in terms of the projects being undertaken, and of the case work involved.

The Committee responded to freedom and responsibility cases in Hungary, Iran, Turkey, Russia, China, USA, Greece, Brazil, Venezuela and Nicaragua in 2020. CFRS's mandated engagement in this area is prompted by alerts from ISC Members and the broader scientific community, and is underpinned by international human rights instruments relevant to science and scientists. Through the year, the Committee made a number of statements about specific cases, as well as about timely general issues such as the ethical responsibilities of scientists during times of global threat.

New initiatives to strengthen scientific freedom and responsibility in the contemporary world

An Expert Writing Group was established to develop a paper that will be extremely important to the work of CFRS in the coming years, *Scientific Freedom and Responsibility in the 21st Century: a contemporary perspective on the responsible practice of science*. The paper explores contemporary perspectives on the meaning and interpretation of scientific freedom and responsibility, including the responsibility of scientists to engage in providing advice to policy-makers, to communicate their results to the general public, and to advocate for the value of science and for scientific values. The paper is currently being reviewed and will be shared with ISC Members in the second half of 2021.

'Scientific freedoms and responsibilities exist in the contemporary context in which scientists work [...] answers and perspectives change because societies change, and any given solution is just a snapshot in time. Freedom and responsibility in science is a theme which needs to be revisited every few decades.'
Scientific Freedom and Responsibility in the 21st Century: a contemporary perspective on the responsible practice of science (forthcoming)

During 2020, CFRS entered into a collaboration with the International Network for Government Science Advice for a project that will develop guidelines for professional conduct for scientists working in emergencies. The Committee is also overseeing the development of several projects covered in the later pages of this report, namely: Science in exile, Gender equality in science and Combating systemic discrimination in science.

The New Zealand government has actively supported CFRS since 2016. This support was generously renewed in 2019, with the Ministry of Business, Innovation and Employment supporting CFRS via CFRS Special Advisor Frances Vaughan, based at Royal Society Te Apārangi, and by Dr Roger Ridley, Director Expert Advice and Practice, Royal Society Te Apārangi.

3 THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

Photo: Eli Cureton / USFWS

While the COVID-19 pandemic undoubtedly dominated discussions about science for policy in 2020, with one decade left to achieve the goals of the 2030 Agenda, the ISC continued to support the production of scientific knowledge for advancing sustainable development. In an editorial published in April 2020, ISC President Daya Reddy and ISC Patron Mary Robinson argued that governments and societies worldwide had shown they were capable of acting swiftly to advance global public good in the face of a crisis, and must now tackle climate change with the same resolve.

'In 2020, the world is at a social tipping point. Scientists and civil society must jointly raise their voices and make every effort to ensure that we emerge on the right side of it. Young people have urged political leaders to listen to the scientists. And, as in its response to the COVID-19 pandemic, the scientific community stands ready to work side by side with governments and businesses to put humanity on a sustainable climate path while managing the development trade-offs responsibly.' Mary Robinson and Daya Reddy, writing in Project Syndicate.

This message was amplified by the scientific community's position paper for the 2020 High-Level Political Forum, which argued that the COVID-19 crisis must become the great accelerator of transformations towards a more sustainable, equitable and healthy world. Such transformations require countries and regions to design and implement integrated, context-sensitive and attainable pathways to change.

Five years on from the Paris Agreement, in December 2020, the ISC launched Transform21, a new series of blogs to explore climate knowledge and action through a pivotal year for action on sustainable development. In early 2021, through an agreement with the UK COP26 organizing team, the blog series became part of a global science portal to share knowledge relevant to the upcoming COP26 negotiations.

Rethinking Human Development

Thirty years since the publication of the first Human Development Report, as humanity strives towards achieving the Sustainable Development Goals at the same time as dealing with a global pandemic, what does human development mean today?

In 2020 the ISC launched the Rethinking Human Development project in partnership with the United Nations Development Programme (UNDP). The project aimed to mobilize input from the scientific community towards a critical review and re-articulation of the human development paradigm, in order to provide a conceptual framework to guide analysis, measurement and decision-making on human development to support the achievement of the SDGs.

The reflection behind the project was launched with a think-piece by ISC Patron Ismail Serageldin, and a global call for input from ISC Members and the Council's broader network. Throughout mid-2020, a series of more than 40 interviews and longer articles published on the ISC website shared insights from well-known thinkers on human development, as well as from early-career researchers and scientists from fields not normally consulted in discussions on human development. This global conversation included perspectives on different conceptions of human development, its relation to value, to the state and to nature.

Explore the conversations on the dedicated website, and download all the articles in one report.

On 10 November 2020, World Science Day for Peace and Development, a global relay of virtual events brought together over 260 participants in events held across different time zones. Watch the launch event here.

Continuing the global relay of virtual events, ISC Members held and participated in webinars for the Asia-Pacific region, sub-Saharan Africa, Brazil and Malaysia. Member of the Global Young Academy, Binyam Sisay Mendisu, who served as a steering committee member of the project, also organized a webinar to bring young academies around the world into the ongoing conversations.

The next phase of this project will focus on measurement of human development.

Hazards Definition and Classification Review

The Sendai Framework for Disaster Risk Reduction 2015–2030 ('the Sendai Framework') was one of three landmark agreements adopted by the United Nations in 2015, alongside the 2030 Agenda for Sustainable Development and the Paris Agreement on Climate Change.

As has been made devastatingly clear through 2020, the hazards facing societies today are highly complex and have cascading risks across natural, social and economic systems. This calls for a standardized characterization of hazards that can serve as a basis for countries to assess and accordingly enhance their risk reduction policies and operational risk management practices.

In recognition of this need, the ISC partnered with the UNDRR in 2019 to launch an ambitious science project to identify the full scope of all hazards relevant to the Sendai Framework from hydro-meteorological, geological and biological to environmental, chemical and technological, and develop a common set of hazard definitions.

In 2019 and the first half of 2020 a Technical Working Group led by Virginia Murray, Head of Global Disaster Risk Reduction at Public Health England, worked to draft hazard definitions and an accompanying report that provides a scientific basis for the definition of specific hazards and related metrics. The process of identifying and defining hazards initiated collaboration across many scientific disciplines, drawing on the expertise of the ISC's Members and broader scientific community who provided peer reviews, as well as across many UN organizations.

The resulting *Hazard Definition & Classification Review: Technical Report* was published in mid-2020, and launched through a virtual meeting on 29 July 2020. It has been well received, and the follow-up has also resulted in opportunities to partner with key UN agencies; CODATA has been engaged to advise the UN on the development of an information management system related to the hazard information profiles. A compilation of hazard information profiles will be published in 2021.

In June 2021 the report was presented to the first Expert Forum for Producers and Users of Disaster-related Statistics.

THE INTEGRATED RESEARCH ON DISASTER RISK (IRDR) PROGRAMME

At the start of the new decade, the IRDR programme created a comprehensive summary of its work as a global, multidisciplinary programme during its ten years of operation. The IRDR Compilation: 2010-2020 : A Ten Year Science Quest for Disaster Risk Reduction drew on contributions from across the IRDR community; its Science Committee, working groups, National Committees, International Centres of Excellence (ICoE), IRDR Young Scientists and IRDR flagship projects provided their research results and case studies.

2020 was also busy with the preparation of a report to the ISC and UNDRR on research priorities for disaster risk reduction as a broad-based, collective and interdisciplinary effort. Following surveys and a literature review, the zero-order draft of the plan was reviewed and further improved through late 2020, ahead of being presented at the IRDR conference in 2021.

The second series of IRDR Working Papers was launched with the publication of four papers covering climate change impacts in permafrost zones, landslides in Himalayan mountain ranges, the biosafety and biosecurity culture interface in life science research, and institutional mapping of disaster risk reduction research.

Finally, the establishment of an IRDR International Centre of Excellence on Risk Interconnectivity and Governance on Weather/Climate Extremes Impact and Public Health (IRDR ICoE-RIG-WECEIPHE), hosted by Fudan University, China, further strengthened the institutional capacity of IRDR.

Transformations to Sustainability (T2S)

The Transformations to Sustainability programme continued to advance knowledge on the social dimensions of environmental change and sustainability. 2020 should have been an intense period of fieldwork and data collection, but became instead a year of learning, reflection and reprioritization for the projects and the programme coordinators.

'The biggest challenge was to conduct face-to-face workshop styled interviews for case studies as originally planned. How did we overcome the challenge? By learning new tools and digitalizing the data collection process.' 2020 T2S virtual meeting participant

The researchers proved their resourcefulness by using information and communication technologies in creative ways to continue data collection and collaboration with stakeholders, although they confirmed that reaching the most marginalized and least connected communities was (and still is) the greatest challenge during the pandemic.

The pandemic challenged some fundamental assumptions in research on transformations to sustainability: what does transformation to sustainability mean in the context of the massive disruption caused by the pandemic and the powerful desire to return to or achieve some kind of 'normal'? Several T2S research projects incorporated considerations relating to the COVID pandemic in their research, such as a case study into whether COVID-19 was shifting attitudes towards sustainability in Amsterdam, the Netherlands.

Programme activities planned by the coordination team at the ISC moved online, and the 2020 midterm workshop was held virtually. Discussions centred on four key concerns of the projects: theory, politics, ethics and methodology of transformative research. A follow-up meeting was organized in December to take stock of the projects' progress, learning and needs.

In addition, 18 early-career researchers funded through the programme took part in an online science communications training course delivered by SciDev.Net. This was very well received, as one participant said:

'The course instructor and contents were outstanding and I was able to develop valuable skills and abilities.'

The programme also continued its partnership with the journal COSUST (*Current Opinion in Environmental Sustainability*) on an ongoing virtual special issue on 'The state of knowledge on transformations to sustainability', with three papers published in 2020. In addition, two 'Knowledge Briefs', bringing peer-reviewed research relevant to social transformations to a wider audience, were produced in 2020.

In the second half of 2020 a midterm evaluation of the Belmont Forum–NORFACE T2S Programme was conducted by a panel of four external experts. The evaluation highlighted both the significant opportunities for cross-project, integrated knowledge production and learning offered by the programme, and the difficulties in realizing those opportunities due to resource constraints and the COVID-19 pandemic. A synthesis study of the programme will be launched in 2021 to ensure that the programme makes the best possible contribution to knowledge on transformations to sustainability and on how to enable and foster research for transformations to sustainability.

The Transformations to Sustainability research programme is funded by thirteen NORFACE and Belmont Forum partners and the European Commission. The ISC funds the participation of researchers from low- and lower-middle income countries, with the support of the Swedish International Development Cooperation Agency (Sida).

WORLD CLIMATE RESEARCH PROGRAMME (WCRP)

ISC Affiliated Body the World Climate Research Programme (WCRP) looked to the future in 2020, to move from the strategies outlined in the WCRP Strategic Plan 2019-2028 to a structure and research priorities that aim to address the urgent challenges and take advantage of the opportunities that society faces now and will face in the future. In line with this aim, two social scientists joined the WCRP Scientific Committee during 2020.

After extensive groundwork, it was agreed in December 2020 that WCRP will establish two new core projects: Earth System Modelling and Observations and Regional Information for Society. These two projects will ensure that modelling and data efforts are well integrated across WCRP and that the climate information from all WCRP activities is accessible, useful and useable. The WCRP community also established five new Lighthouse Activities, which will tackle critical issues over the next decade:

- Explaining and Predicting Earth System Change: Explaining, predicting and gaining an early warning of changes in the Earth system.
- My Climate Risk: Assessing and explaining regional climate risk to deliver climate information that is meaningful at the local scale.
- Safe Landing Climates: Exploring the routes to climate-safe landing 'spaces' for human and natural systems.
- Digital Earths: Creating digital and dynamic representations of climate in the Earth system that can be openly explored and accessed in new and innovative ways.
- WCRP Academy: Bringing together existing and facilitating new climate research and education opportunities to prepare for a new generation of climate scientists and leaders.

To ensure that communities around the world have a voice in WCRP priorities, the Programme established a series of Climate Research Forums in 2020, with over 50 Regional Focal Points from around the world. Building on this, planning has started for a WCRP Open Science Conference in 2023 that will have a focus on bridging climate science and society.

WCRP Lighthouse Activities

Photo: LIRA 2030 Annual Research Forum, Addis Ababa, Ethiopia (ISC).

Leading Integrated Research for Agenda 2030 in Africa (LIRA 2030)

The LIRA 2030 programme seeks to increase the production of high quality, integrated (inter- and transdisciplinary), solutions-oriented research on global sustainability by early-career scientists in Africa. In 2020 an Annual Research Forum was held in Addis Ababa, Ethiopia. Thirty-five researchers met with members of the programme's Scientific Advisory Committee and other leading scholars and practitioners on urban and transdisciplinary research, in order to share experiences and foster collaboration on tackling sustainability challenges across African cities.

Researchers also took part in training on scientific writing to increase publication success, which was delivered by ISC Affiliate Member the International Network for Advancing Science and Policy (INASP).

A report of the programme, *Advancing the 2030 Agenda in African cities through knowledge co-production: Urban experiments led by early-career African scientists*, was published in April 2020. The report explores what it takes to co-produce knowledge on sustainable urban development in Africa through collaboration among scientists, policy actors, urban practitioners, the private sector and communities, and the opportunities and challenges created by this engaged process of knowledge production. In addition, LIRA researchers published multiple blogs, 17 academic articles and 20 policy briefs in 2020.

The programme also launched eight collaborative projects to foster research collaboration and learning across the LIRA projects and to support interdisciplinary writing teams to publish joint academic articles. This funding supports teams that bring together representatives from two or more LIRA 2030 projects that have not previously worked together. The aim is to compare and synthesize knowledge in order to help scale up the societal, environmental and intellectual benefits of different projects, and ultimately to advance scientific understanding of urban sustainable development in African cities.

'The grant provides an opportunity for intellectual advancement and for practical insights into the contribution of transdisciplinary research (TD) to the SDGs implementation through knowledge exchange, methods, and concepts sharing. The grant gives me an opportunity to publish a joint paper with LIRA grantees. It will increase my chances of being promoted at my institution and of receiving additional grants for upscaling.' Sokhna Thiam, one of the LIRA researchers leading a collaborative project at IRESSEF (Institute for Health Research, Epidemiological Surveillance and Training), Senegal.

Several LIRA projects were also actively involved in reflecting on the implications of the COVID-19 pandemic for urban development in Africa, for health systems and for transdisciplinary research. In addition, webinars held in November-December 2020 provided a showcase for project results and an opportunity to discuss how COVID-19 had affected research under the programme.

A LIRA project led by Sylvia Croese was highlighted in Mozambique's Voluntary National Review on progress towards the Sustainable Development Goals, which was presented at the United Nations High-level Political Forum on Sustainable Development in 2020.

LIRA 2030, which was launched in 2016, was due to wrap up in 2020, but has been extended for an additional year in light of the COVID-19 pandemic, to allow researchers to complete their activities. LIRA 2030 is supported by the Swedish International Development Cooperation Agency (Sida).

URBAN HEALTH AND WELLBEING PROGRAMME

The Urban Health and Wellbeing Programme (UHWB), a multidisciplinary science programme hosted by the Institute of Urban Environment, Chinese Academy of Sciences (IUE-CAS), has developed a systems approach for improving health and wellbeing in cities and engaging with urban communities in the process of creating and transferring knowledge. The importance of this approach was made especially clear in 2020 in a commentary published by the UHWB scientific committee on how 'COVID-19 reveals the systemic nature of urban health globally'.

The UHWB programme has a global partnership network of more than 40 organizations, and continued to build on this through 2020, signing a Memorandum of Understanding with the Global Forum on Human Settlements (GFHS) to promote sustainable green urban development and the local implementation of sustainability goals worldwide. The programme is also continuing its collaboration with UN-Habitat on the sourcebook *Integrating Health in Urban and Territorial Planning*.

In June 2020, IUE-CAS and UHWB jointly established the Belt and Road Alliance of Urban Environmental Health under the Alliance of International Science Organizations (ANSO). The Alliance will carry out in-depth research and cooperation in waste recycling, agriculture, healthy food and biomass and other urban ecosystem technologies. In 2020 the programme also developed a new research agenda for 2021–2025, which will be published in 2021.

Global Forum of Funders

Following the 2019 launch of the 'Decade of Global Sustainability Science Action' at the inaugural Global Forum of Funders, in 2020 the ISC released a global call to mobilize scientists in all fields and all disciplines to identify priorities for game-changing action in two related domains: science for sustainability transformations and transformations of science systems. The aim was to convene the insights and ideas of the broader global scientific community on the critical priorities for science that will support and enable societies to accomplish the SDGs by 2030. The call received 239 complete responses from 61 countries across different continents. This input served as the basis for the development of *A Framework to Unleash Mission-Oriented Science*, which was presented at the Second Global Forum of Funders in 2021.

In June 2020 the ISC organized a webinar on The role of science and science funders in the time of the COVID-19 crisis to share knowledge about the impacts of the COVID-19 pandemic on science funding, to foster collaborative action, to discuss the potential longer-term implications of the pandemic for global science systems, and to explore ways of enabling science to respond more effectively to future similar threats. Under the framework of the Global Forum of Funders, the ISC also published four blogs on the role of mission-oriented science for sustainable development, featuring perspectives from Japan, Sweden and the European Commission.

FUTURE EARTH

Future Earth's mission is to accelerate transformations to global sustainability through research and innovation, and much of the programme's work focuses on understanding, mitigating and responding to the complex systemic challenges facing society. The programme continued to draw on its expert networks through 2020 to better understand emergent risks such as global pandemics, highlighting the importance of getting 'traction on science for change in a decade of transformation'.

Find out more in the 2019-2020 Future Earth Annual Report.

4 POLICY AND PUBLIC DISCOURSE

Photo: Jon Tyson, Unsplash

The ISC Action Plan 2019–2021 reiterated the importance of developing more effective science-policy interfaces, based on enhanced competencies within science and policy communities and informed by relationships of trust. In the context of a global pandemic, this could not have been truer. As heads of state repeatedly appeared with chief scientific advisors and medical officers to address worried citizens on the rapidly developing and changing nature of the health emergency, science was thrust into the spotlight, becoming the focus of much hope for rapid solutions.

Short-term responses were urgently needed, but it quickly became clear that transformational solutions to create a 'new normal' based around fairness and sustainability would be essential over the longer term, and that this needed to be underpinned by communication to wider publics around the importance and need for science-led solutions.

The Public Value of Science project outlined in the Action Plan was split into several workstreams, framed around understanding scientific engagement, enabling scientific engagement and extending scientific engagement. The latter two workstreams are due to be fully launched in 2021.

The extending scientific engagement workstream draws on the partnerships the ISC is developing with media to engage different publics with the value of science. In 2020 these partnerships included Global Science TV, Science in the Newsroom Summit and the launch of ISC Presents podcasting series. A new partnership with BBC Storyworks commenced towards the end of 2020 and launched in 2021.

Global science TV

The pandemic provided an opportunity to partner with the Australian Academy of Science and experiment with taking their successful 'verified science' engagement model to a global audience. The result was Global Science TV, a series that features scientists sharing educational, entertaining and informative content on issues of major scientific relevance. Global Science TV is presented by Nuala Hafner and supported by ISC Members, and aims to champion the role of science by framing the issues, explaining areas of complexity and proposing possible solutions to a general audience.

With the expert assistance of the Australian Academy's video production team, Global Science TV first aired on 12 May 2020 and included guests such as the ISC's three Patrons, Mary Robinson, Ismail Serageldin and Vint Cerf.

The series is primarily aimed at those outside the science community, who otherwise have minimal or no exposure to scientific content, as well as policy- and decision-makers who are engaged with the ISC through social media channels.

The most popular format has proven to be 'science explained', with videos such as 'Arctic ice keeps shrinking. Here's what that means for all of us', 'COVID-19: The facts about airborne transmission' and 'Scientists detect an "impossible" black hole. Here's what that means' all among the most watched in the series.

The future success of Global Science TV will depend on building on the lessons learned in its first year of operation, expanding its digital oversight committee to include a global cohort of natural and social science experts, increasing engagement with ISC Members to include multiple language options and local hubs which could assist in producing content, and developing a broader funding base.

The ISC is grateful to the Australian Academy of Science for their leadership and expertise in this project.

ISC Patron Vint Cerf is one of the 'fathers of the internet', and Google's 'Chief Internet Evangelist'. In an interview for Global Science TV, Cerf shared some surprising fears about the future of the web.

SCIENCE IN THE NEWSROOM SUMMIT

The ISC was invited to partner with the World Association of News Publishers and its World Editors Forum as a programme advisor to their newsroom summit, *Journalism in the Age of Pandemics*.

After the World Health Organization called the global pandemic an 'infodemic', the summit provided an opportunity to hear from experts on the role journalism can play in countering misinformation during times of crisis. Journalists and editors participated in four sessions on how to bolster their evidence-based journalism to ensure coverage is accurate and valuable for the citizens they serve. ISC Member the Australian Academy of Science presented a case study for the session 'Specialist Skills: how to boost newsroom expertise whatever your budget' to assist newsrooms affected by budgetary restrictions that cut back on specialist science and health reporters. The outcome of the summit was a new handbook for journalists, *Journalism in the Age of Pandemics: A guidebook*.

Photo: Recording 'ISC Presents: Women in Science' (ISC)

ISC Presents: Entering the world of the podcast

Always keen to expand its communication offer to ISC Members and the broader community, the Council experimented with podcasts for the first time in 2020. You can listen and subscribe to the podcasts on Spotify, Apple and Google platforms.

ISC Presents aired in February 2020 with its first series, *Women in Science*, featuring seven podcasts recorded at the International Day of Women and Girls in Science.

The ISC's inaugural series discussed gender equality in science systems through the voices of six women researchers who shared their achievements, challenges and aspirations. The series shone a light on the effort to empower, connect and inspire present and future generations of female scientists. The second series focused on 'Big Thinkers', with five podcasts amplifying the voices of Global Science TV through a different medium.

The experimentation paved the way for a podcast collaboration with *Nature* in 2021, as part of their Working Scientist podcast on the topic of diversity. The resulting series of six episodes featured voices from the ISC network and highlighted the ISC's work on combating racism and discrimination in science. The next in the ISC Presents series will be *Science in Exile* as part of the initiative with the same name.

INTERNATIONAL NETWORK FOR GOVERNMENT SCIENCE ADVICE (INGSA)

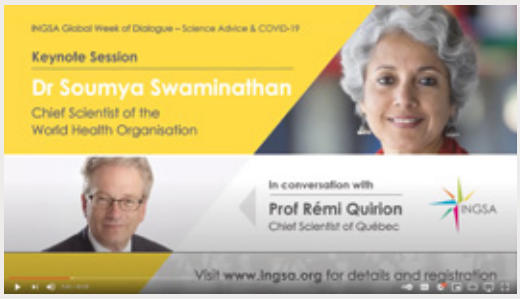
The emerging pandemic saw INGSA's 2020 work programme take a strong pivot towards issues of crisis response, particularly in tracking the science advice mechanisms that played a role in evidence adoption by governments. Early in the pandemic, INGSA also acted as a rapid-response conduit between national public health agencies and research organizations. In response to the sudden and fragmented increase in discussions on how evidence does and should inform policy, INGSA launched a digital Covid-19 Information Hub to aggregate and share resources. The site became a valuable hub for how science advice and evidence functions in emergencies, including collections of commentary pieces, publications and webinars and interviews with relevant experts and practitioners.

The pandemic also saw INGSA leverage its global capacities for citizen science, with the launch of the cross-country Covid-19 policymaking tracker as a live web-based data collection tool for tracking policy interventions and their supporting evidence/justifications at national and subnational levels. Volunteer rapporteurs from over 100 jurisdictions were enlisted for data collection efforts, enabling INGSA to release a preliminary report drawing on exploratory findings from the policy tracker.

In partnership with the International Development Research Centre (IDRC), the INGSA Knowledge Associate programme has provided professional development grants to six early-to-mid career researchers and policy professionals in low and middle income countries to undertake deep-dive case studies on their country's use of evidence in policy decisions related to COVID-19.

INGSA has also been an active collaborator in the UK-based International Public Policy Observatory (IPPO), the goal of which is to rapidly provide scientific evidence and international policy experience around COVID-19 to policy-makers. The project has resulted in several outputs, including joint reports in collaboration with the Oxford COVID-19 Government Response Tracker.

In lieu of a biennial conference, INGSA hosted an online Global Week of Dialogue in mid-September 2020, bringing together science advice experts to discuss key early lessons for governments, scientists and policy-makers at the interfaces of science and policy.



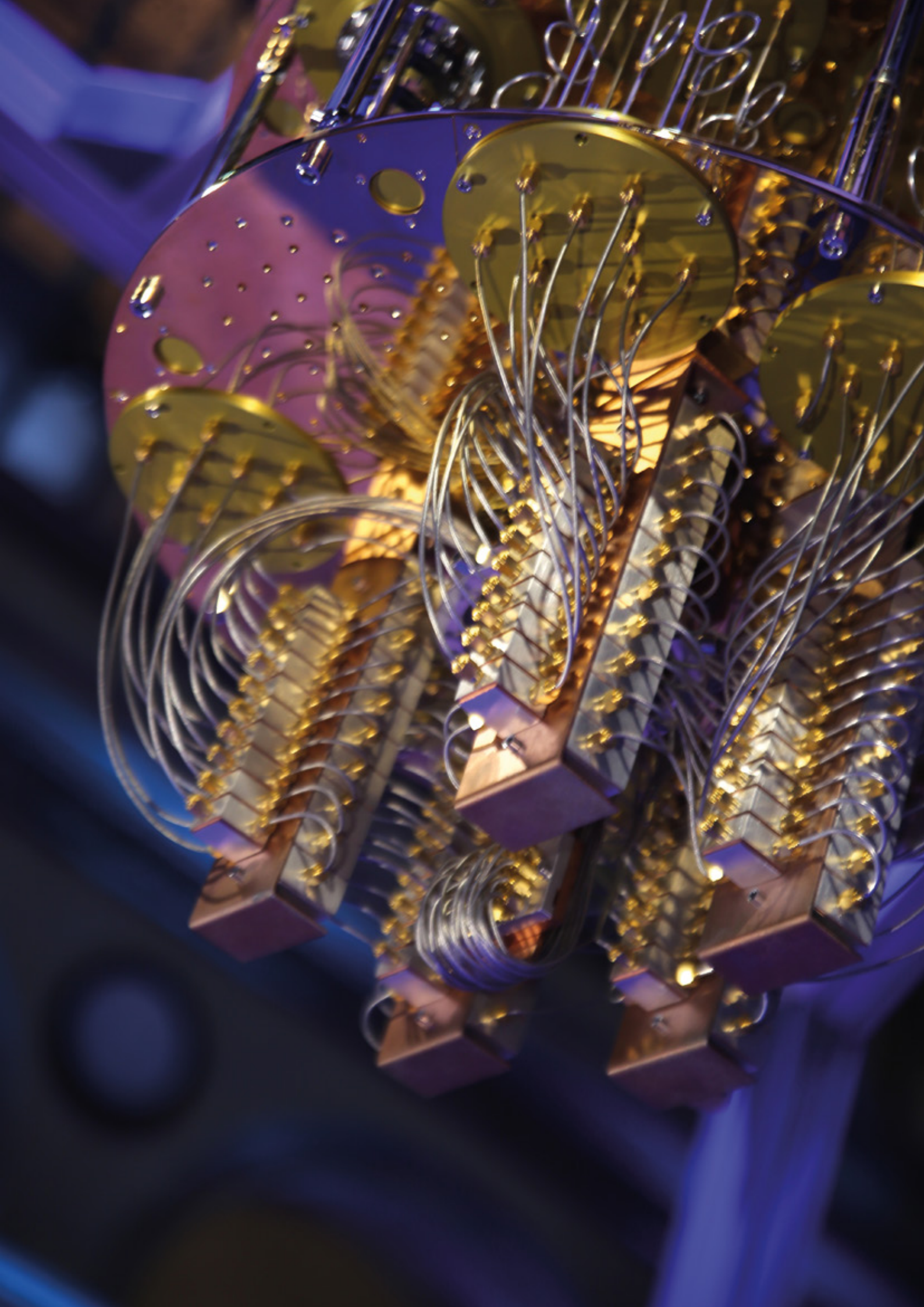
2020 also saw the INGSA Regional Chapters in Africa, Asia and Latin America further increase their impact and reach through a range of collaborations and activities.

5 THE DIGITAL REVOLUTION

Like much else, in 2020 global research and data infrastructure was put to the test during the COVID-19 pandemic. The urgent need for international scientific collaboration, and for rapid access to scientific data and information, available to policy-makers and citizens alike, was facilitated by the tools of the digital revolution.

The ability to combine, visualize and use data from many sources has far-reaching consequences for science and society reaching beyond the COVID-19 crisis. Throughout 2020 the ISC worked to build the infrastructure required to strengthen use of digital technologies across the science community and across the world.

Photo: Quantum Computing by Pierre Metivier



Open science

Openness is at the heart of the scientific endeavour and informs all of the ISC's work. Open science is becoming more important as an emerging paradigm for science, as is demonstrated by the ongoing development of an international standard-setting instrument on open science in the form of a UNESCO Recommendation on Open Science to be adopted by Member States in 2021.

In 2020, in response to the UNESCO global consultation on open science, the ISC developed a draft working paper that describes the rationale for and the origins of the modern open science movement, its dimensions and its applications. The paper makes recommendations for scientists, universities, UNESCO and other scientific organizations on the changes required for the effective operation of open science.

UNESCO invited the ISC, the European Federation of Academies of Sciences and Humanities (ALLEA), the InterAcademy Partnership (IAP) and World Federation of Engineering Organizations (WFEO) to convene feedback from the scientific community on the first draft of the UNESCO Recommendation. The results of the survey were published in early 2021, and the ISC is continuing to engage with UNESCO as the process towards finalizing and adopting the Recommendation continues.

Making Data Work for Cross-Domain Grand Challenges

Building knowledge on the complex global challenges facing the world today demands interdisciplinary collaboration enabled by data integration policies and practices across scientific fields and disciplines. Yet our capacity for carrying out this kind of work is constrained by limitations in our ability to access and combine heterogeneous data from disparate disciplinary sources.

Addressing this shortcoming requires an ecosystem of resources that enable data to be FAIR (Findable, Accessible, Interoperable and Reusable) for humans and machines. Achieving this goal requires a major consensus-building effort, in particular to gain agreement about the core technologies and semantic solutions which will allow data to be combined for cross-domain research.

Towards this aim, CODATA, the ISC's Committee on Data, is currently developing a decadal programme, 'Making Data Work for Cross-Domain Grand Challenges', to be launched at the ISC General Assembly in October 2021.

In 2020 CODATA developed a number of pilot activities which will be core to the programme. Prominent among these has been collaboration with the DDI (Data Documentation Initiative) Alliance on the review and refinement of a new metadata specification: DDI-Cross Domain Integration (CDI). This has included a European Open Science Cloud Co-Creation Project to explore a number of use cases and examples.

The programme is also exploring how to make vocabularies and terminologies FAIR. This has led to a set of recommendations 'Ten Simple Rules for making a vocabulary FAIR' and a collaboration with IUSSP on FAIR Vocabularies in the demographic sciences.

The programme comprises case studies to explore the application of technologies and semantic solutions in various cross-domain research fields, including infectious diseases, disaster risk reduction and resilient and healthy cities. For infectious diseases, CODATA is a partner in the INSPIRE-PEACH project which is addressing the challenges of combining demographic health data, clinical data and phylogenetic tree data to support COVID-19 research in Africa.

Finally, CODATA has been preparing the Global Open Science Cloud (GOSC initiative) which will encourage cooperation and alignment between various Open Science platforms, including the European Open Science Cloud, the Malaysian Open Science Platform, the Chinese Science and Technology Cloud and so on. The initiative comprises a number of thematic Working Groups and Case Studies for data sharing and interoperability between platforms.

A Digital Planet for Sustainability

Digital solutions have the potential to create multiple opportunities to accelerate the implementation of the 2030 Agenda and to enhance quality of life for everyone, within the ecological limits of our planet. Creating 'A Digital Planet for Sustainability' is a systemic and long-term challenge which needs various forms of new knowledge, collaboration and accelerated engagement from all parts of the scientific community, governmental institutions, UN bodies, technology companies and civil society.

In 2020 the ISC participated in a discussion to develop the initiative 'A Digital Planet for Sustainability', together with the German Environment Agency (UBA), UNDP, UNEP and Future Earth. The resulting Coalition for Digital Environmental Sustainability (CODES) was launched on 31 March 2021, and members of the group are now working to organize meetings, shape discussions, issue flagship reports and help forge collaborations towards an acceleration plan for digitalizing environmental sustainability.

6 THE EVOLUTION OF SCIENCE AND SCIENCE SYSTEMS

Photo: Japanexperterna.se

Science systems were thoroughly tested in 2020, with research institutions and individual scientists grappling with a remarkable demand for rapid access to research findings relevant to the pandemic and disruption to research and teaching activities. While some aspects of international scientific collaboration, such as international travel or large in-person conferences, were stymied, 2020 also saw innovative use of digital tools to facilitate scientific collaboration, and changes to publishing practices in order to make much-needed research on the pandemic openly accessible. This kind of innovation and openness helped the scientific community to rise to the challenge of COVID-19, advancing understanding of the virus and developing a vaccine in record time.

2020 was also marked by protests about the persistent racism and other forms of discrimination that continue to affect our societies, including the institutions and practices of science. In recognition of the need for change, the Council has initiated a new project on combating systemic discrimination in science, and continues to work to promote more equal science systems.

The future of scientific publishing

With an explosion in demand for publishing outlets, digital disruption, publications increasingly used as signifiers of scientific merit, and costly paywalls that constrain access to scientific journals for all but the most well-funded researchers, the traditional systems of scientific publishing are under pressure. Consultations with ISC Members have revealed that this issue is of significant interest and importance to scientists everywhere.

In 2020 the ISC undertook a major review of the role of publishing in the scientific enterprise and developed a set of principles for scientific publishing that aim to maximize the benefit of publications for global science and for the wider audiences for scientific research. A discussion paper was developed with the support of an international scoping group, and circulated to Members for their feedback in mid-2021. A total of 79 different Members provided feedback through an online survey and later virtual discussion meetings that aimed to gather perspectives on the analysis and principles proposed in the draft paper, and to explore the potential for a broader campaign for change.

Following revisions, the draft paper was published as an ISC Report, *Opening the record of science: making scholarly publishing work for science in the digital era*, in February 2021, and work is under way to develop a powerful and broadly based coalition for change to ensure that the processes of efficient dissemination and use of scientific work are central parts of a revitalized open science.

'The paper is important for many of us who are involved in editing, assisting young researchers to publish their results and review of papers pre-publishing. For developing countries, the paper can serve as a guideline in the process of creating a stable process to publishing of results of extensive work which frequently does not find its way to being published & for others to access.' Suad Mohammed Sulaiman, *Sudanese National Academy of Sciences*

Science in Exile

The number of forcibly displaced people worldwide is at an all-time high. Among them are many scientists who are forced to interrupt or leave behind their research, often with no certainty about if or when they will be able to return home and continue their scientific work. The Science in Exile network, which was launched in June 2020, aims to gather knowledge and lay the groundwork for a cohesive and coordinated response to the challenges faced by displaced and refugee scientists by identifying and acting upon the many ways in which different types of science institutions can support scientists in exile. The network was further developed through strategy workshops held in October 2020, and will continue to take shape through 2021. Science in Exile is a collaboration between The World Academy of Sciences for the advancement of science in developing countries (TWAS), the InterAcademy Partnership (IAP) and the International Science Council under the umbrella of *Science International*. Science in Exile is supported by the Swedish International Development Cooperation Agency (Sida).

'Supporting displaced scientists is not just helping a person or their family. It's a valuable step to support their home country in the future.' Feras Kharrat, *University of Trieste (Italy), and formerly professor at the University of Aleppo, Syria*

Gender equality in science: From awareness to transformation

The science community cannot ignore the need to address inequities facing women in science. While a large amount of research has been undertaken on how to improve the representation of women in science, there is still more to do. Towards this aim the ISC has initiated a project to gather and share data and evidence on effective policies and practices to advance gender equality in science organizations, and to build a network of international science organizations that are monitoring progress and working together to improve gender equality. A survey of ISC Members undertaken in 2020 received feedback from 48% of ISC Academy Members and 63% of Unions and Associations, demonstrating the interest from Members in sharing best practice on improving gender equality. A report of the findings, including recommendations for further action, is planned for 2021.

A GLOBAL APPROACH TO THE GENDER GAP IN MATHEMATICAL, COMPUTING, AND NATURAL SCIENCES: HOW TO MEASURE IT, HOW TO REDUCE IT?

Women's experiences in educational and employment settings are consistently less positive than men's, according to the findings of a three-year ISC-funded project published on 11 February 2020, the International Day of Women and Girls in Science.

The project was led by ISC Members, the International Mathematical Union (IMU), through its Committee for Women in Mathematics, and the International Union of Pure and Applied Chemistry (IUPAC), and supported by nine other ISC Member unions and other partners. The project comprised three main areas of research: a data-backed study on publications, a global survey of scientists and a database of good practice.

The final report *A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: How to Measure It, How to Reduce It?* suggested four strategies in order to inspire young women to pursue careers in scientific fields:

1. Engage families and communities in promoting STEM careers to girls, especially when these careers are contrary to cultural expectations and norms.
2. Engage girls and women in exploring socio-scientific issues.
3. Promote social support for women and girls, such as peer networks and mentoring by more experienced STEM researchers or professionals.
4. Develop women and girls' STEM leadership, advocacy and communication skills.

A Standing Committee on Gender Equality in Science has been launched to continue the work initiated within the project. In late 2020 the Committee warned that women scientists had been particularly hard hit by the COVID-19 pandemic, especially those at an early stage of their careers, and called for all individuals and institutions engaged in science to join forces in supporting women colleagues whose research careers are jeopardized by the pandemic.

Photo: Fabienne Meier

Combating systemic discrimination in science

With the murder of George Floyd in Minneapolis on 25 May 2020, communities around the world were again reminded of the persistent – and too often invisible – scourge of systemic racism in society. The ISC published a statement on 9 June 2020 asking for a dialogue to be convened in all societies and in all sectors of society, including science.

Moreover, the ISC invited a core group of international science organizations to convene a global dialogue within and beyond the institutions of science that would gather existing knowledge and agree on additional concrete steps aimed at correcting systemic discrimination in science.

Three meetings of this group have taken place, with partners agreeing on collaborative action to bring together scientists and expert commentators to examine structural and systemic racism and other forms of discrimination in science, and to guide a strategy development process to identify existing forms of discrimination, barriers to change and paths for corrective action.

As part of the ongoing dialogue, the ISC partnered with Falling Walls on two webinars for World Science Week:

- *Combating Systemic Racism in Science Systems*
- *Forging a more inclusive research ecosystem: a dialogue with key stakeholders*, held by Falling Walls in collaboration with Elsevier.

The ISC also started a partnership with *Nature's* Working Scientist Podcast to explore what practical steps can be put in place to improve diversity in science workplaces and ways of working, and how organizations such as the ISC can be 'better allies for better science'. The series aired in 2021.

'We call on our members and international partners to join us in undertaking urgent action: to gather existing knowledge on discrimination in science; to convene a global dialogue within and beyond the institutions of science; and to agree on additional concrete steps aimed at correcting systemic discrimination in science.' ISC statement on combating systemic racism and other forms of discrimination

Regional Open Science Platforms

The new paradigm of open science is a powerful driver for scientific research and scholarship and its application to social, economic and global environmental priorities. Against this backdrop the Council is working with CODATA, with its Regional Offices and with other partner organizations to create regional Open Science Platforms to advance data-intensive, solutions-oriented research in the Global South.

Following a multi-year pilot study, the Pan-African Open Science Platform (AOSP) is moving into an operational phase, and in April 2020 the National Research Foundation (NRF) of South Africa agreed to host the African Open Science Platform (AOSP) Project Office for the next 3 to 5 years.

In the coming years, the project will work on the development of analogous platforms in Latin America and the Caribbean and in the Asia-Pacific region, as well as on connecting these platforms for a South-South network.

7 GOVERNANCE

Photo: Sigmund, Unsplash

The first elected Governing Board of the ISC completed its final full year of operation in 2020, ahead of the 2021 General Assembly that will see the election of a new Governing Board. Although the Governing Board was unable to meet in person in 2020, regular virtual meetings ensured continuity in the Board's activities, even allowing for the Board to increase their number of meetings to six in 2020.

AFRICA

1. The African Scientists Directory was developed by the Regional Office for Africa (ROA) and the Academy of Science of South Africa (ASSAf), with funding made available by the South African Department of Science and Innovation. Officially launched in May 2020 as part of virtual Africa Day celebrations, the directory aims to foster joint research efforts and mitigate the 'brain drain' of African scientists leaving the continent.
2. The Regional Office for Africa coordinated scientists across the continent to produce two books as part of a mandate to raise issues that are of importance to the continent:

a) *Climate Variability and Change in Africa: Perspectives, Experiences and Sustainability* (currently with more than 4,000 downloads)

b) *Food and Nutrition Security in Africa*

3. 'Science for Development' was a key theme for the region, with a workshop held in January at the South African Astronomical Observatory (SAAO) in Cape Town, South Africa. The aim of the workshop was to create a space for interaction between natural scientists, technology experts, social scientists and development practitioners, in order to encourage and develop interdisciplinary initiatives with tangible benefits to society which could contribute to the achievement of the United Nation's 2030 Agenda. Later in the year, the Regional Office held a virtual meeting as part of Rethinking Human Development, which featured experts in education and astronomy for development.

LATIN AMERICA AND THE CARIBBEAN

1. As part of the global relay on Rethinking Human Development, the ISC partnered with the Brazilian Academy of Sciences to highlight the nine new directions to a Brazilian audience. Speakers included ISC Vice-President Elisa Reis and Academy President Luiz Davidovich.
2. The ISC encouraged its Members to share their views on the principles and recommendations for research evaluation, *Towards a Transformation of Scientific Research Assessment in Latin America and the Caribbean*, drafted by the Latin American Forum for Research Assessment (FOLEC, Foro Latinoamericano sobre Evaluación Científica) and coordinated by the Latin American Council of Social Sciences (CLACSO).
3. ISC Member, the Brazilian Academy of Sciences, is a partner in a major new initiative, The Science Panel for the Amazon, which was launched in August 2020.

ASIA AND THE PACIFIC

1. Open science was at the forefront of the Regional Office for Asia and the Pacific's (ROAP) activities in 2020. ROAP worked closely with the UNESCO Science Bureau for Asia and the Pacific, contributing to UNESCO's regional consultation, and will continue to co-organize activities to support UNESCO's Recommendation on Open Science.
2. Together with the Academy of Sciences Malaysia (ASM) and the Ministry of Science, Technology and Innovation, ROAP advocated for open science to the Asia-Pacific Economic Cooperation (APEC). These efforts culminated in the endorsement by APEC Policy Partnership on Science, Technology and Innovation of the Open Science Statement that calls on all APEC economies to support open science, promote science-based evidence in the promulgation of domestic policies and enhance collaboration through capacity building and experience sharing.
3. ROAP, together with the Mahathir Science Award Foundation (MSAF) and ASM, organized webinars as part of the 'TropSc Webinar Series: The Future Belongs to the Tropics' that aimed to highlight sustainability issues in the tropics. Webinars included 'Youth for the Tropics', focusing on climate change, harnessing and protecting natural resources and the role of youth in social entrepreneurship; 'Black Gold of the Tropics', on how to ensure a sustainable global coffee industry; 'The Soul of the Cities', on the importance of the arts, culture and the human aspects in constituting the soul of the city; and 'Mountains and Life', on the value of mountains in the tropics.

All of the webinars were recorded and can be viewed on ROAP's Facebook page.

SMALL ISLAND DEVELOPING STATES

In July 2020, the Council announced the appointment of an eight-member Liaison Committee to strengthen integration of scientific knowledge from Small Island Developing States into the Council's activities.

FINANCES FOR THE PERIOD

Statement of Combined Income and Expenditure of the International Science Council (ISC) from 1 January to 31 December 2020.

Income	(Euros)
Membership Dues	
Category 2 members	**2,837,778**
Category 1 members	**201,030**
Category 3 members	**17,680**
Contribution from French Government	**100,000**
NSF dedicated funds at the end of previous year	**206,430**
Taipei grant for IRDR ICoE	**294,898**
Taipei IRDR dedicated funds at the end of previous year	**402,139**
IDRC grant for INGSA 2020-2022	**201,995**
Sida grant for LIRA 2030	**1,019,654**
Sida dedicated funds for LIRA 2030 at the end of previous year	**24,172**
Sida grant for Transformations to Sustainability (T2S)	**641,666**
Sida dedicated funds for T2S at the end of previous year	**223,371**
UNDP contribution for Rethinking Human Development project	**42,515**
New Zealand Government contribution for CFRS	**68,410**
Other	**14,672**
Total Income	**6,296,411**

Expenditure (Euros)	
Governance meetings	**94,067**
Science	
ISC led or co-led projects and initiatives	**94,371**
ISC funding programmes (supported by Sida)	**481,122**
ISC partnered initiatives	**100,000**
ISC co-sponsored international research programmes and affiliated bodies	**156,017**
Other scientific activities	**10,000**
New activity development	**48,000**
Dedicated funds at the end of previous year	**2,030,631**
Communications	**47,750**
Support	
Human Resources	**2,657,472**
ISC Regional Structures	**177,152**
Finance and Office Support	**367,339**
Total Expenditure	**6,263,920**
Excess of expenditure over income	**32,491**

BALANCE SHEET

Balance Sheet of the International Science Council on 31 December 2020.

Assets	(Euros)
Fixed assets	37,008
Current assets	6,499,031
Total assets	**6,536,039**

Liabilities	(Euros)
NSF,SIDA, Taipei IRDR & IDRC funds allocated	2,039,041
Current liabilities	998,977
Total liabilities	**3,038,018**

Reserves	(Euros)
Total reserves	**3,465,531**

Net Result	**32,491**

8 MEMBERSHIP ENGAGEMENT

Photo: Sigmund on Unsplash

In this exceptional moment for science, ISC Members have modelled the importance of international collaboration, and of 'standing together' to strive towards finding solutions to global challenges such as the COVID-19 pandemic, the climate or the biodiversity crisis.

The ISC headquarters appointed a Membership Liaison Officer in 2020 in order to act as a focal point for all membership-related matters within the Council, and to support consistent and regular exchanges between the Council's headquarters and governance structures and the ISC membership.

As part of this work to strengthen engagement with ISC Members, one-to-one conversations with Members took place throughout 2020, and proved to be a great opportunity for the ISC headquarters to learn more about the individual organizational priorities and areas of interest of ISC Members, and to provide updates on opportunities to participate in ISC initiatives. These conversations will continue throughout 2021. In addition, the membership section of the ISC website has been expanded to feature and highlight news items from ISC Members and to provide a hub for all membership-related updates, as well as opportunities to get involved with specific activities via the ISC Membership Notice Board.

In response to requests for more opportunities for engagement and knowledge sharing among the ISC membership, the ISC Knowledge Sharing Series of online meetings was launched in November 2020. The meetings are open to all staff members, office bearers and representatives of ISC Members.

Welcoming new Members that joined in 2020

The Council was delighted to welcome twelve new Members in 2020. Members are listed in different 'categories', in line with the changes to Statutes agreed at the February 2021 electronic General Assembly.

Category 1 (Full Members)

- International Union of Biochemistry and Molecular Biology (IUBMB)

Category 2 (Full Members)

- The Korean Academy of Science and Technology (KAST)
- Association of Asian Social Science Research Councils (AASSREC)
- Benin National Academy of Sciences, Arts and Letters (ANSALB)
- Senegal Academy of Science and Technology (ANSTS)

Category 3 (Affiliated Members)

- The Society for the Advancement of Science in Africa (SASA)
- Global Young Academy (GYA)
- International Network for Advancing Science and Policy (INASP)
- International Society for Porous Media (InterPore)
- Academy of the Social Sciences in Australia (ASSA)
- Institute for Global Environmental Strategies (IGES)
- Organization for Women in Science for the Developing World (OWSD)

Regional impact

As part of the ISC's Action Plan strategy to strengthen its presence and impact at regional level, three consultative meetings for its Members in Africa, Latin America and the Caribbean, and Asia-Pacific were held in March and April. The purpose of the outreach was to work with Members to ensure that the new global secretariat meets the needs of the Council and strengthens membership engagement everywhere. The regional meetings aimed to:

- get inputs from Members on their priorities for the Action Plan;
- identify strategies for increased impact of the Council in the region;
- provide feedback on the proposed regional governance structures.

The ISC Governing Board invited expressions of interest from Members from the Latin America and Caribbean, Asia and the Pacific, and Africa regions to work with the Board on establishing and hosting regional ISC secretariat structures. The Council is now developing a strategy to promote new, more flexible models of regional presence based on exploratory conversations with Members. The Governing Board has agreed to work with the Colombian Academy of Exact, Physical and Natural Sciences (ACCEFYN) to establish a regional focal point for Latin America and the Caribbean (LAC), which will include the establishment of a LAC Liaison Committee under the leadership of Enrique Forero, President of ACCEFYN. This follows the closure of the ISC Regional Office for Latin America and the Caribbean in May 2020 as a result of a financial decision by the government of El Salvador.

A call for expressions of interest to host a regional presence in Asia and the Pacific was open until April 2021 and discussions with Members in Africa are ongoing.

ISC MEMBERS

At the end of 2020, the ISC had 41 Full Members in Category 1 (international scientific Unions and Associations), 146 Full Members in Category 2 (Academies of sciences, Research Councils or analogous not-for-profit scientific bodies representing a broad spectrum of scientific fields or disciplines in a country, region, territory or globally) and 37 Members in Category 3 (Affiliated Members).

A

Africa, African Academy of Sciences (AAS)

Albania, Academy of Sciences (ASA)

Angola, Foundation of Science and Development

Arab Council for the Social Sciences (ACSS)

Argentina, National Scientific and Technological Research Council (CONICET)

Armenia, National Academy of Sciences of the Republic of Armenia (NAS RA)

Association of Academies and Societies of Sciences in Asia (AASSA)

Association of Asian Social Science Research Councils (AASSREC)

Association of Science and Technology Centers (ASTC)

Australia, Academy of the Social Sciences in Australia (ASSA)

Australia, Australian Academy of Science

Austria, Austrian Academy of Sciences (ÖAW)

Azerbaijan, Azerbaijan National Academy of Sciences (ANAS)

B

Bangladesh, Bangladesh Academy of Sciences (BAS)

Belarus, National Academy of Sciences (NASB)

Belgium, Royal Academies for Science and the Arts of Belgium (RASAB)

Benin, National Academy of Sciences, Arts and Letters (ANSALB)

Bolivia, National Academy of Sciences of Bolivia (ANCB)

Bosnia & Herzegovina, Academy of Sciences and Arts of Bosnia and Herzegovina (ANUBiH)

Bosnia & Herzegovina, Academy of Sciences and Arts of the Republic of Srpska (ANURS)

Botswana, Ministry of Infrastructure Science and Technology

Brazil, Brazilian Academy of Sciences (ABC)

Brazil, National Association of Graduate Studies and Research in Social Sciences (ANPOCS)

Bulgaria, Bulgarian Academy of Sciences (BAS)

Burkina Faso, National Center for Scientific and Technological Research (CNRST)

C

Cameroon, Cameroon Academy of Sciences (CAS)

Canada, National Research Council of Canada (NRC)

Canada, Social Science and Humanities Research Council of Canada (SSHRC)

Caribbean, Caribbean Academy of Sciences (CAS)

Chile, Chilean Academy of Sciences

China, Academy of Sciences located in Taipei

China, Association for Science and Technology (CAST)

China, Chinese Academy of Social Sciences (CASS)

Colombia, Colombian Academy of Exact, Physical and Natural Sciences (ACCEFYN)

Costa Rica, National Academy of Sciences

Council for the Development of Social Science Research in Africa (CODESRIA)

Côte d'Ivoire, Academy of Sciences, Arts, African Cultures and Diasporas (ASCAD)

Cuba, Academy of Sciences

Czech Republic, Czech Academy of Sciences

D

Denmark, Royal Danish Academy of Sciences and Letters

Dominican Republic, Academy of Sciences of the Dominican Republic

E

Egypt, Academy of Scientific Research and Technology (ASRT)

El Salvador, Viceministerio de Ciencia y Tecnología de El Salvador

Estonia, Estonian Academy of Sciences

Eswatini, National Research Council

European Association of Development and Training Institutes (EADI)

European Consortium for Political Research (ECPR)

F

Facultad Latinoamericana de Ciencias Sociales (FLACSO)

Finland, Council of Finnish Academies

France, Académie des Sciences

G

Georgia, Georgian Academy of Science

Germany, Deutsche Forschungsgemeinschaft (DFG)

Ghana, Ghana Academy of Arts & Sciences

Global Young Academy (GYA)

Greece, Academy of Athens

Guatemala, Academia de Ciencias Médicas, Fisicas y Naturales

H

Honduras, National Academy of Sciences of Honduras

Hungary, Hungarian Academy of Sciences

I

India, Indian Council of Social Science Research (ICSSR)

India, Indian National Science Academy (INSA)

Indonesia, Indonesian Institute of Sciences (LIPI)

Institute for Global Environmental Strategies (IGES)

International Arctic Science Committee (IASC)

International Arctic Social Sciences Association (IASSA)

International Association of Applied Psychology (IAAP)

International Association of Legal Science (IALS)

International Astronomical Union (IAU)

International Cartographic Association (ICA)

International Commission for Acoustics (ICA)

International Commission for Optics (ICO)

International Commission on Illumination (CIE)

International Council for Industrial and Applied Mathematics (ICIAM)

International Council for Laboratory Animal Science (ICLAS)

International Council for Scientific and Technical Information (ICSTI)

International Economic Association (IEA)

International Federation for Information Processing (IFIP)

International Federation of Data Organizations for Social Science (IFDO)

International Federation of Library Associations and Institutions (IFLA)

International Federation of Societies for Microscopy (IFSM)

International Federation of Surveyors (FIG)

International Foundation for Science (IFS)

International Geographical Union (IGU)

International Institute for Applied System Analysis (IIASA)

International Mathematical Union (IMU)

International Network for Advancing Science and Policy (INASP)

International Peace Research Association (IPRA)

International Political Science Association (IPSA)

International Society for Digital Earth (ISDE)

International Society for Ecological Economics (ISEE)

International Society for Photogrammetry and Remote Sensing (ISPRS)

International Society for Porous Media (InterPore)

International Sociological Association (ISA)

International Statistical Institute (ISI)

International Studies Association (ISA)

International Union for History and Philosophy of Science and Technology (IUHPST)

International Union for Physical and Engineering Sciences in Medicine (IUPESM)

International Union for Pure and Applied Biophysics (IUPAB)

International Union for Quaternary Research (INQUA)

International Union for the Scientific Study of Population (IUSSP)

International Union for Vacuum Science, Technique and Applications (IUVSTA)

International Union of Academies (UAI)

International Union of Basic and Clinical Pharmacology (IUPHAR)

International Union of Biochemistry and Molecular Biology (IUBMB)

International Union of Biological Sciences (IUBS)

International Union of Crystallography (IUCr)

International Union of Food Science and Technology (IUFoST)

International Union of Forest Research Organizations (IUFRO)

International Union of Geodesy and Geophysics (IUGG)

International Union of Geological Sciences (IUGS)

International Union of Immunological Societies (IUIS)

International Union of Materials Research Societies (IUMRS)

International Union of Microbiological Societies (IUMS)

International Union of Nutritional Sciences (IUNS)

International Union of Physiological Sciences (IUPS)

International Union of Psychological Science (IUPsyS)

International Union of Pure and Applied Chemistry (IUPAC)

International Union of Pure and Applied Physics (IUPAP)

International Union of Soil Sciences (IUSS)

International Union of Speleology (UIS)

International Union of Theoretical and Applied Mechanics (IUTAM)

International Union of Toxicology (IUTOX)

International Water Association (IWA)

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 (CNR)

J

Jamaica, Scientific Research Council (SRC)

Japan, Science Council of Japan (SCJ)

Jordan, Royal Scientific Society (RSS)

K

Kazakhstan, National Academy of Sciences of the Republic of Kazakhstan (NAS RK)

Kenya, Kenya National Academy of Sciences

Korea, Democratic People's Republic of, State Academy of Sciences

Korea, Republic of, Korean Social Science Research Council (KOSSREC)

Korea, Republic of, National Academy of Sciences of the Republic of Korea

Korea, Republic of, Korean Academy of Science and Technology (KAST)

L

Lao PDR, Lao National Science Council

Latin American Council of Social Sciences (CLACSO)

Latvia, Latvian Academy of Sciences

Lebanon, National Council for Scientific Research (CNRS-L)

Lesotho, Department of Science and Technology

Lithuania, Lithuanian Academy of Sciences

Luxembourg, Fonds National de la Recherche (FNR)

M

Madagascar, Ministère de l'Enseignement Supérieur et de la Recherche Scientifique

Malawi, National Commission for Science and Technology

Malaysia, Academy of Sciences Malaysia

Mauritius, Mauritius Academy of Science (MAST)

Mexico, Academia Mexicana de Ciencias

Mexico, Consejo Mexicano de Ciencias Sociales (COMECSO)

Moldova, Academy of Sciences of Moldova

Monaco, Centre Scientifique de Monaco

Mongolia, Mongolian Academy of Sciences

Montenegro, Montenegrin Academy of Sciences and Arts

Morocco, Hassan II Academy of Sciences and Technology

Mozambique, Scientific Research Association of Mozambique (AICIMO)

N

Namibia, National Commission on Research, Science and Technology (NCRST)

Nepal, Nepal Academy of Science and Technology (NAST)

Netherlands, Koninklijke Nederlandse Akademie van Wetenschappen (KNAW)

New Zealand, Royal Society Te Apārangi

Nigeria, Nigerian Academy of Science

North Macedonia, Macedonian Academy of Sciences and Arts

Norway, Norwegian Academy of Sciences and Letters

Norway, University of Bergen, (UiB)

O

Oman, Ministry of Higher Education, Research and Innovation

Organization for Social Science Research in Eastern and Southern Africa (OSSREA)

Organization for Women in Science for the Developing World (OWSD)

P

Pacific Science Association (PSA)

Pakistan, Pakistan Association for the Advancement of Science (PAAS)

Panama, Universidad de Panama

Peru, Academia Nacional de Ciencias

Philippines, National Research Council of the Philippines (NRCP)

Philippines, Philippine Social Science Council (PSSC)

Poland, Polish Academy of Sciences

Portugal, Academia das Ciencias de Lisboa

R

Romania, Academia Româna

Russian Federation, Russian Academy of Sciences (RAS)

Rwanda, Kigali Institute of Science and Technology (KIST)

S

Saudi Arabia, King Abdulaziz City for Science and Technology (KACST)

Scientific Committee of Problems of the Environment (SCOPE)

Senegal, Senegal Academy of Science and Technology (ANSTS)

Serbia, Serbian Academy of Sciences and Arts

Seychelles, Seychelles National Parks Authority

Singapore, Singapore National Academy of Science (SNAS)

Slovak Republic, Slovak Academy of Sciences (SAS)

Slovenia, Slovenian Academy of Sciences and Arts (SASA)

Social Science Research Council (SSRC)

Society for Social Studies of Science (4S)

Society for the Advancement of Science in Africa (SASA)

South Africa, Human Sciences Research Council of South Africa (HSRC)

South Africa, National Research Foundation (NRF)

South Pacific, University of the South Pacific (USP)

Spain, Ministry for Science and Innovation (MCIN)

Sri Lanka, National Science Foundation (NSF)

Sudan, National Centre for Research (NCR)

Sweden, Royal Swedish Academy of Sciences

Switzerland, Swiss Academy of Humanities and Social Sciences (SAHS)

Switzerland, Swiss Academy of Sciences

T

Tajikistan, Academy of Sciences of the Republic of Tajikistan

Tanzania, Tanzania Commission for Science and Technology

Thailand, National Research Council of Thailand

The World Academy of Sciences (TWAS)

Togo, Chancellerie des Universités du Togo

Transnational Institute (TNI)

Tunisia, Université Tunis El Manar

Turkey, Science Academy – Bilim Akademisi

Turkey, Scientific and Technical Research Council of Turkey (TÜBITAK)

Turkey, Turkish Academy of Sciences (TÜBA)

U

Uganda, Uganda National Council for Science and Technology (UNCST)

Ukraine, National Academy of Sciences (NAS)

Union Radio-Scientifique Internationale (URSI)

United Kingdom, The British Academy

United Kingdom, Economic and Social Research Council (ESRC)

United Kingdom, The Royal Society

United States, National Academy of Sciences (NAS)

Uruguay, Comisión Consejo Nacional de Innovacion Ciencia y Tecnologia (CONICYT)

Uzbekistan, Academy of Sciences of the Republic of Uzbekistan

V

Vatican City State, Pontifical Academy of Sciences

Venezuela, Fondo Nacional de Ciencia, Tecnología e Innovación (FONACIT)

Vietnam, Vietnam Union of Science and Technology Associations (VUSTA)

W

World Anthropological Union (WAU)

World Association for Public Opinion Research (WAPOR)

Z

Zambia, Zambia Academy of Sciences

Zimbabwe, Research Council of Zimbabwe (RCZ)

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