

Impact Outlook

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- 'Through regular opportunities for dialogue to understand the differences between the natural and social sciences, and to build trust and confidence in each other through collaboration, the new, merged organisation will even more effectively address global issues, while enhancing the disciplinary excellence needed'

An international organisation offering global perspectives

The planned merger between the International Social Science Council and the International Council for Science (ICSU) offers exciting new possibilities for scholars, scientists and the wider community. ICSU President, Professor Gordon McBean, discusses the role of the merged organisation

How do global issues present challenges for both natural and social scientists?

As we look around the world at the important and pressing global issues, such as climate change, disaster risk reduction and achieving sustainable development, we realise that these issues range across the full spectrum of natural, socioeconomic, health and engineering sciences. The impacts of hurricanes on the Caribbean and United States, and a sequence of earthquakes in Mexico, demonstrate the need to better predict the occurrence and characteristics of hazards.

We need to understand how people interpret risk and, based on this, what actions they take. When a governor calls for the evacuation of a community or region, how many respond, and why, or why not? What actions should governments – all governments – now be taking to address future extreme events? How do we 'build back better' for events beyond the next election? The impacts of hazards, be they storms, earthquakes, heatwaves, wildfires or others, depend on the particular hazard and the exposure and vulnerability of communities, infrastructure and other societal aspects. These are just examples of the complex issues facing societies around the globe that present major challenges to the international scientific community – across the natural and social sciences.

How can organisations like the International Council for Science (ICSU) help in the kind of disaster scenarios you mention, and in the reconstruction effort?

In 2004, we saw the horrific impact of the Indian Ocean tsunami. The issues were clearly major concerns for natural and social sciences in their broadest sense. In 2008, the International Council for Science and the International Social Sciences Council (ISSC), with the United Nations Office for Disaster Risk Reduction (UNISDR), started a new international research programme, Integrated Research on Disaster Risk (IRDR). This programme addresses the science for understanding and predicting hazards, vulnerability and risk providing the bases for effective decision-

making, improving risk interpretation and strategies for reducing risk and curbing losses. It has established a dozen Centres of Excellence around the world. More recently, the Councils, with others, have co-sponsored the programme Future Earth, bringing research and innovation together for global sustainability. Future Earth is building, in part, on the merged strengths of the core projects of the International Geosphere-Biosphere Programme (IGBP), Diversitas and ISSC's International Human Dimensions Programme. These and other international research programmes are providing global communities with strong and continuing scientific inputs to achieve their targets, and they demonstrate clearly the need for a transdisciplinary science approach.

What benefits will the proposed merger between the ICSU and the ISSC bring?

The international setting within which science is done, and the demands for it to contribute more directly to human wellbeing, have changed in ways that need greater integration of understanding across the different domains of science as represented by the two Councils. The two Councils have been working together and there is an ever increasing need for the joint framing of ideas and co-design of collaborative initiatives. By bringing the two organisations together, we will achieve an enhanced level of integration, while ensuring that scientific excellence across the disciplines is even further improved. Through regular opportunities for dialogue to understand the differences between the natural and social sciences, and to build trust and confidence in each other through collaboration, the new, merged organisation will even more effectively address global issues while enhancing the disciplinary excellence needed.

What will the disciplinary scope of the new, merged organisation be?

Both the ICSU and ISSC have very much built on the strengths of their scientific unions and associations, and their national members. The unions of psychologists, geographers and sociologists are already members of both organisations. The

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merged organisation will formally bring together scientists across the unions of sciences, including mathematical, physical, chemical, biological, astronomy, nutrition, food, radio science, pharmacology, physical-engineering sciences in medicine, geosciences and others of the ICSU, with the economists, political scientists, legal, peace, population and public opinion researchers of the ISSC. In addition to enabling more dynamic and responsive decision-making (through unified governance and management arrangements), the merged organisation will make more efficient use of available resources.

How are social scientists responding to some of the most pressing challenges facing society at the moment?

The 2017 Global Risks Report provides an interesting and valuable assessment of the pressing challenges facing society now. The report presents key challenges covering economics and growth, societal trends, technological change and global cooperation. They note that, 'challenges requiring global cooperation are found in the environmental category'. The environment-related risks ranked as the most likely high impact risks – extreme weather events, failure of climate change mitigation and adaptation, water crises, natural disasters, are strongly interconnected with many other risks, such as conflict and migration, and these environmentally-related concerns have become more critical than previously regarded. Addressing these challenges requires social scientists working together with natural scientists. As discussed above, the international global research programmes, Future Earth and IRDR, and collaborating programmes on building global scientific capacity and data and information issues, are moving ahead and need ever increasing support.

What have been some recent key concerns for Science International, your central 'policy for science' body?

A key concern has been science and the digital revolution. Starting with open data, it is important to recognise that it was also necessary to focus on the fundamental challenges and opportunities for science created by the tools of the digital revolution. One of the challenges is the issue of Big Data, recognising that the large volumes create issues of openness, access and quality. The data are often linked, noting the integration of data across scientific fields and disciplines, which adds to the complexities in dealing with these issues. A challenge with respect to open data is that of ensuring data science capacities, and hence benefits, are equitably distributed across regions of the world. The report 'Open Data in a Big Data

World' has become an international accord with very large global recognition and endorsement. To fully exploit the ever increasing amounts of data will depend on the capacity to use it, and re-use it.

What are the main principles or guidelines of this accord?

This accord proposes 12 principles to guide the practice and practitioners of open data. The principles of open data include issues of: responsibilities; boundaries of openness; enabling practices; issues of citation and provenance; interoperability; non-restrictive re-use; and the 'linkability' of data. The ICSU and ISSC are working with other agencies and the global science community to address these issues for the broad benefits of all societies. There are also significant issues of public-private sector connections and their impact on data use, recognition and financial support.

What will the merged institution's priorities be in the next decade?

Driven by the merger, there will be the opportunity and challenges of extending the focus to a broader set of issues, beyond sustainability and broad environmental issues. We also see the very important role in rearticulating the value of all science for society, which is particularly important in today's world of access to information, democratisation of science, populism and other issues. Across the board, the merger and the overall enhanced role of the new – whose name will be decided soon – will enable and enhance the role of science for the benefit of all societies.

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