



Foreword

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Today we are profoundly aware that society has the ability to alter the planet's physical, chemical, biological, and geological environments on a local, regional and global scale. At the same time, because of our increasingly complex social and technological infrastructure, we are more vulnerable to natural hazards and anthropogenic influences. Currently, global challenges include, but are not limited to, climate change, energy consumption, food and water security.

Viewed more positively, because of our more comprehensive understanding of the planet's environment, we are offered new and unforeseen opportunities to improve standards and quality of life. However, enormous challenges stand in the way of attaining this optimistic vision of a future guided by science. These include intellectual challenges in all scientific disciplines and the interactions between the different disciplines and between science and society. Knowledge and technologies are advancing so rapidly that it is difficult for people to keep up with the rate of change and effectively exploit the progress made. The integration of scientific and technological advances and their transfer into policy-making (application to societal needs) are perhaps the greatest of these challenges. We strongly believe that the only way to address these challenges and take advantage of the opportunities that scientific and technological development brings is to strengthen the links between society, policy-makers and scientists.

Since its inception in 1931, the International Council for Science has endorsed and vigorously upheld the Principle of Universality of Science, which affirms the right of scientists throughout the world to participate in scientific activity without any discrimination on the grounds of ethnic origin, religion, citizenship, language, political stance, gender, sex or age. We firmly believe that the scientific research processes leading to knowledge creation benefit all mankind. These processes are dependent on the freedom of scholars, especially those from developing countries, to communicate, to meet, to travel to conferences, to publish their results and to proffer advice.

To further bring about solutions to global challenges, key stakeholders should work closely together. The following areas are some concrete examples of actions that may help to achieve a more sustainable world in the future:

- Strengthening interdisciplinary research. As is true across all of science, many of the most difficult and challenging scientific problems have emerged at the intersections between the traditional disciplines. Interdisciplinary work is difficult and demanding in many ways and institutional barriers must not be allowed to stand in the way of effective teamwork;
- Focusing on combining existing global infrastructures for observing and modelling facilities for environmental research;
- Further promoting the universality of science, with a focus on scientific data-sharing and developing countries;
- Building the global partnerships that are needed to ensure that the appropriate mix of advances in theory, observational systems, technologies, and the social sciences are brought to bear on the most critical societal problems;
- Strengthening support for the increased involvement of early career scientists, social scientists and developing countries in knowledge creation;
- Enhancing dialogue and partnership between the key stakeholders.

Environmental policy decisions need to be based on sound scientific knowledge, which should be an integration of natural and social sciences. We should all work together to support this integrated approach for science for sustainable development.

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