

4. The responsibility and ethics of communicating science

The pace of scientific discovery has quickened, but barriers to scientific information and the benefits of research remain. The increased complexity and volume of scientific information requires new methods of data validation and research dissemination. While the application of artificial intelligence opens new paths for the management of scientific research and data, it also raises concerns about privacy, control and the use of personal data. Such developments alter the landscape of access to knowledge and present challenges in transitioning to novel publishing models and the application of new communication strategies.

We reinforce our commitment to science as a global public good and support open science and new publishing models that grant access to scientific publications.

We recognize the importance of scientists engaging with the public about science, including the risks associated with its conduct or application and the acknowledgement of other interpretations of research. We encourage scientists to foster citizen science and to promote the co-creation of actionable knowledge.

We recognize the imperatives for evidence-informed decision-making and a stronger science-policy-practice interface and, therefore, the need for scientists to be trained to communicate their work to decision-makers and the general public.

We recognize the powerful role of media in communicating scientific information and call for rigorous fact checking and analysis in reporting. We call for a reassessment of science's relationship with media, particularly in view of conflicting or misleading news and information, and the use of false equivalence.

We encourage scientists to produce, apply and communicate science and to raise awareness of both the benefits and ethical considerations.

ORGANISER



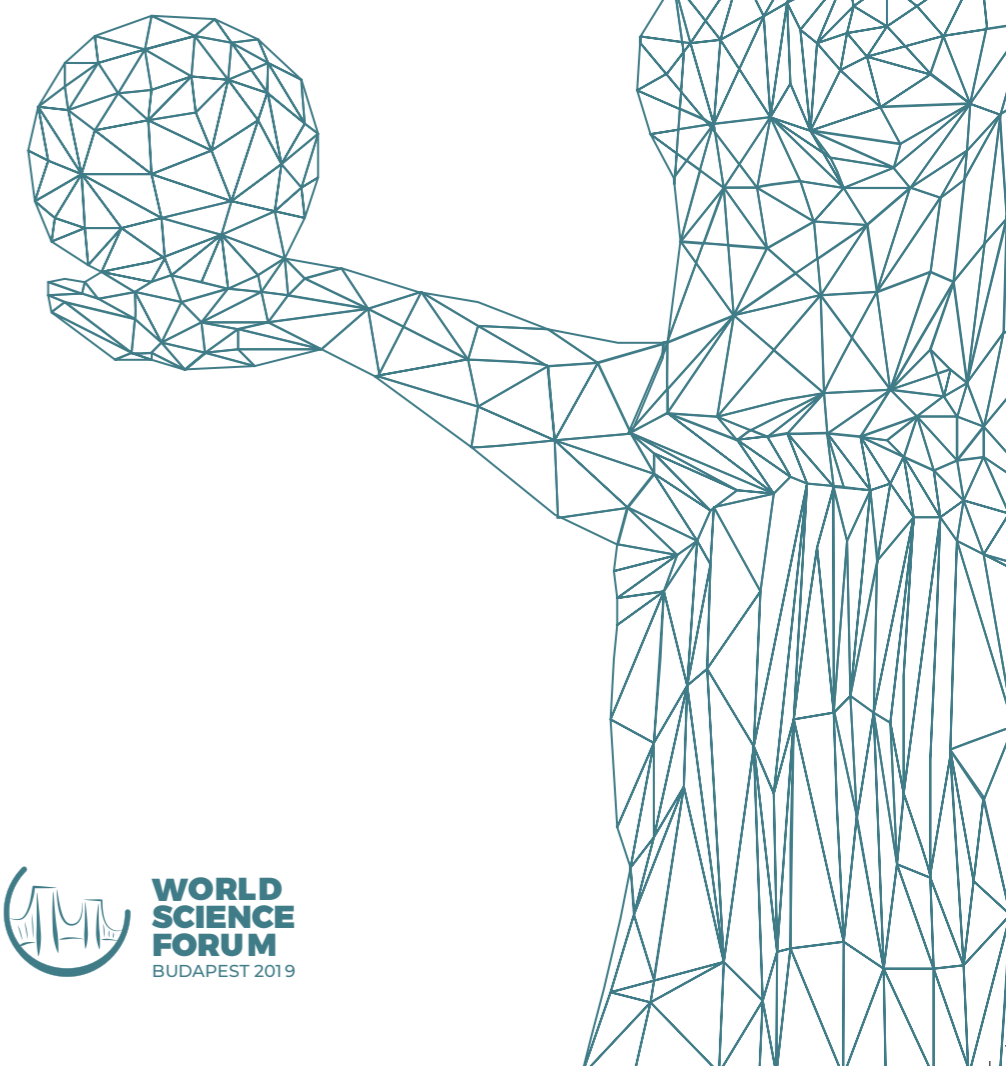
**WORLD
SCIENCE
FORUM**
BUDAPEST 2019



PARTNER ORGANISATIONS



DECLARATION OF THE 9TH WORLD SCIENCE FORUM **Science, ethics and responsibility**



DECLARATION OF THE 9th WORLD SCIENCE FORUM Science Ethics and Responsibility

Text adopted on 23 November 2019, Budapest

PREAMBLE

With the encouragement and support of the partner organisations of the World Science Forum, the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Science Council (ISC), the Hungarian Academy of Sciences, the American Association for the Advancement of Science (AAAS), The World Academy of Sciences (TWAS), the InterAcademy Partnership (IAP), and the European Academies' Science Advisory Council (EASAC), we the participants of the 9th World Science Forum, held from 20-23 November 2019 in Budapest, adopt the present declaration.

World Science Forum (WSF), an outcome of the 1999 World Conference on Science, is a biennial event that since 2003 has been successfully assembling scientists, policymakers, industry leaders, civil society and the media to discuss the role of science in meeting global challenges.

In line with the recommendations of the 1999 World Conference on Science (WCS) on *Science and the Use of Scientific Knowledge*, and taking into account the 2011 *Budapest Declaration on the New Era of Global Science*, the 2013 *Rio de Janeiro Declaration on Science for Global Sustainable Development*, the 2015 *Budapest Declaration on The Enabling Power of Science*, and the 2017 *Jordan Declaration on Science for Peace* we reaffirm our commitment to the rigorous and ethical conduct of scientific research and the responsible use of scientific knowledge.

Science, Ethics and Responsibility – 20 years after the 1999 World Conference on Science

The *Declaration on Science and the Use of Scientific Knowledge* endorsed by representatives of 155 governments in Budapest at the 1999 UNESCO World Conference of Science was a pioneering document outlining a clear vision for science and society in the 21st century. It defined an expanded role and responsibility for science in a new era of human history in which science and technology are primary drivers of societal change.

Indeed, in the past 20 years, we have seen a revolution in multiple fields of scientific research coupled with deep and ongoing change in our societies. New scientific discoveries in fields such as information and communication technologies, synthetic biology and gene editing, artificial intelligence, big data and machine learning have further increased the pace at which science and technology impact our environment and society, with the potential to entrench rather than reduce inequalities.

Environmental and social challenges including demography, climate change, pollution and water security have raised new expectations for science.

Globally, investment in research and development has greatly increased, and new state and non-state actors have reshaped the established global order and impacted the production of scientific knowledge and the distribution of science investment and funding.

In our societies transformed by the rise of new communication channels and social media, scientific knowledge is increasingly challenged in public discourse by opinions and beliefs based on distrust, insufficient engagement, poor science literacy, and inefficient communication of science to the public and policymakers. At a time of accelerating global change, it is particularly important that young people in all societies have access to scientific education.

We recall the 1999 Declaration on Science and the use of Scientific Knowledge and acknowledge the growing importance of the message of “Science for the 21st Century: A New Commitment” as presented in its recommendations.

We must ensure shared responsibility for ethical considerations to be recognised as intrinsic to defining the objectives of scientific inquiry, making funding allocations, and conducting, disseminating and applying research. This should apply in particular to the education and inclusion of young and emerging scientists and innovators.

We foster a proactive culture of self-regulation by scientists.

We embrace the Principle of Freedom and Responsibility in Science adopted by ISC member organisations, the renewed Recommendation on Science and Scientific Researchers adopted by UNESCO, and the AAAS Statement on Scientific Freedom and Responsibility as reference documents for further consideration.

We celebrate 20 years of international science dialogue since the 1999 World Conference on Science and 100 years since the establishment of the International Research Council, the first non-governmental organisation to foster scientific collaboration on a global scale. We affirm our commitment to scientific responsibility for the global public good through attainment of the United Nations Sustainable Development Goals.

1. Science for global well-being

The value of science cannot be measured solely by its contribution to economic prosperity. Science is a global public good with the ability to contribute to sustainable development and global well-being.

We recognise the responsibilities of scientists to conduct and apply science with integrity, in the interest of humanity, for well-being and with respect to human rights.

We call for the reassessment of science and funding policies recognizing the value of science as a tool to push the boundaries of human knowledge, to promote universal well-being, to monitor, analyse and respond to environmental, social and economic challenges, and to address the capacity needs of scientifically lagging countries.

We embrace the freedom of scientists to plan and conduct research that may not be specifically responsive to any immediate socio-economic or environmental expectations. Good science must be free to fly when curiosity is the driving factor.

2. Strengthen global standards in research integrity

In the world of globalised science there is a growing need for the harmonisation and promotion of research integrity which includes common codes of conduct and their enforcement. This should apply especially for rapidly developing areas of science and research performed by transnational entities.

We call for harmonisation and enforcement of standards of conduct of scientific research across borders and across public and private research.

We acknowledge that worthy research requires more than intellectual merit and impact; it must be ethical, inclusive, and socially responsible.

We call for the establishment of self-regulatory processes by which scientists can report suspected research misconduct and other irresponsible research practices, without fear of reprisal, and the establishment of procedures for responding to such allegations.

We support regional and national efforts to promote global standards of research integrity, and in particular we celebrate the emergence from World Science Forum 2017 of the Charter of Ethics of Science and Technology in the Arab Region.

3. Fulfilment of academic freedom and the human right to science

While acknowledging that the principle of academic freedom is supported and promoted by science organisations globally, there is little consensus on the conditions that enable its fulfilment. In an evolving era in which science is increasingly dependent on research infrastructure, research funding, and top-down policy agendas, the concept of academic freedom must be revisited.

Academic freedom must operate at every point in the research process. It must encompass the autonomy of researchers and research institutions, access to peer-reviewed scientific knowledge and data without systemic barriers, access to research infrastructure and funding, and the freedom to set bottom-up research agendas in all fields of science, including social sciences, and the freedom to communicate scientific results.

We acknowledge that scientific freedom can only be respected by society if it is based on strict ethical principles.

We call on the international scientific community to develop new standards for the fulfilment of academic freedom, and to create tools to describe, monitor and measure its integral conditions.

We acknowledge the vital nature of curiosity-driven basic sciences. We welcome the UNESCO's designation of 2022 as the International Year of Basic Sciences for Development.

We reaffirm our support for the rights of refugee and other displaced scientists.

We reinforce our commitment to promote the right to science for all—including those underrepresented and underserved by science, such as women and minorities—as an essential precursor to sustainable and prosperous societies and durable peace.