

**CERN, UNESCO and ICSU (in cooperation with TWAS and ICTP): comments
and inputs from the Scientific Community
on the Draft Declaration and Action Plan**



The international scientific community, represented here by the Third World Academy of Sciences (TWAS), the International Council for Science (ICSU), the International Center for Theoretical Physics (ICTP), the European Organization for Nuclear Research (CERN) and the United Nations Educational, Scientific and Cultural Organization (UNESCO), is very pleased to provide to the WSIS process the following comments and specific proposals on the Draft Declaration of Principles and Draft Action Plan.

This contribution builds on previous submissions from TWAS, ICSU and UNESCO for the first two preparatory meetings for WSIS. UNESCO is again making a separate submission at this stage, but has been fully involved in the formulation of the current input, which is reflected in its own submission.

General Background

Science is a key public good that underpins the information society. The fundamental scientific and technological components of the Information Society have been driven by the search for fundamental knowledge and solutions to specific problems. The Information Society tools, from electricity and radio waves to the World Wide Web and browsers, were all discovered or invented in scientific and academic laboratories.

Scientific research and technology drive today's economies and serve as twin pillars of progress for advances in knowledge for all humankind. Scientific knowledge often has international applicability. Information and communication technologies have the capacity to increase accessibility to scientific knowledge worldwide.

The essential role of science and scientists in building the Information Society has been understated in the Draft Declaration of Principles and Draft Plan Action. The scientific community urges governments to clearly acknowledge it in the Declaration of Principles and reflected in the Plan of Action of WSIS.

Information and communication technologies (ICTs) are also central to scientific research itself. ICTs enable scientists to perform basic and applied research, build partnerships and scientific international consortia, conduct experiments, collate data, coordinate laboratory activities, and communicate their findings to their peers and the public. The digital world in which we live is not only a product of science but also a fundamental force for shaping the scientific research agenda and determining how the future of scientific knowledge will unfold and be utilized.

The digital world offers novel opportunities for involving scientists in developing countries in scientific endeavors of their choice around the globe, provided some very basic ICT tools are at their disposal. Many of these can now be made more affordable.

Despite this potential, the knowledge divide appears to be widening. Increasing inequalities in access to ICTs reduce opportunities for individuals and institutions to develop and use scientific knowledge that could help foster innovation, facilitate efficient decision making, and support education and training. The digital divide addressed by WSIS shares many of the same characteristics of the scientific divide, defined by the enormous gap in scientific research, innovation and diffusion of technology.

In addition, present systems for the publication and dissemination of scientific information do not provide sufficient access to knowledge originating in many developing countries. While scientific data and information from one country may or may not be specifically relevant to another country's needs, all countries must be able to develop and communicate their own knowledge.

In order to reduce these inequalities and to achieve Sustainable Development and the Millennium Goals, science, technology and innovation will have to play a fundamental role, maximizing the possibilities and benefits of ICTs in the areas of basic and applied research, education, health, agriculture, technology, economic development and government.

Therefore, ensuring equitable access to scientific knowledge and to software tools for analyzing and disseminating this information is essential, as well as making available affordable networking infrastructure, information-processing equipment, software and training to universities and research institutions world wide.

The Agenda for Action “Science in the Information Society”, attached to this document, is the product of a workshop organized by ICSU and the ICSU Committee on Data for Science and Technology (CODATA), in partnership with UNESCO. The workshop took place in Paris on 12th. March 2003 and involved over 60 scientists, science managers and representatives of international agencies from all over the world. This Science Agenda for Action conveys the main messages of the Science Community for WSIS. Further information on the workshop can be found at www.icsu.org.

UNESCO, ICSU, TWAS and CERN are organizing a side event to be held at CERN on December 8th and 9th, 2003, whose preliminary programme is attached. Further information on this event can be found at rsis.web.cern.ch/rsis.

Long-term goals for the Information Society include universal access, open standards, open source, interoperability and decentralization, as already stated in the draft declaration of principles. Documentation on this can be found at www.w3c.org/consortium.

Specific proposals

Draft Declaration of Principles (Doc. WSIS/PCIP/DT/1-E)

- Include the new following paragraph in Section I.B.10:

“Science has a central role in the information society. There should be universal and equitable access to scientific knowledge and equal opportunities for all to create, disseminate and use information”.

- Reformulate Section I. A. 5. as follows:

“We are fully aware that our individual and collective ability to create and share knowledge has become a driving force in shaping our future, and that concrete action and global commitment are now required, in order to ensure that science, knowledge and new technologies accelerate the attainment of the Millennium Development Goals that we set for ourselves at the Millennium Summit”.

- Include the following new paragraph in Section I. B. 10:

“The recognition of scientific knowledge as a public good. Scientific data and information should be as widely available and affordable as possible”.

- Reformulate Section I. C. 22 as follows:

“Access to knowledge and information, from science and other areas: all individuals and organizations should benefit from access to information, knowledge and ideas. The sharing and strengthening of global knowledge for development can be enhanced by ensuring equitable access to information for educational, scientific, economic, social, political and cultural activities”.

- Reformulate Section I. C. 2. 23 as follows:

“Access to public domain information: A vibrant and rich public domain is an essential element for the growth of the Information Society. Information, including scientific data, in the public domain must be easily accessible.”

- Reformulate Section I. C.3.27, as follows:

“All partners –public, private sector and civil society organizations have a stake in the development of information and communications and should be fully involved in decision making at the local, national, regional and international levels. Scientific and academic institutions have an important role to play in this context. Governments should work in close coordination with private enterprise and civil society”.

- Reformulate Section I.C.6.38 as follows:

“The existence of a supportive and predictable policy, legal and regulatory framework is an important prerequisite for enhancing trust in the development of the Information Society. In particular, knowledge generated by publicly-funded programmes should be recognized as a public good”.

- On Par.43: delete the word “radio”.

- Include the following new principle, under section I.C.4:

“Universities and Research institutions have a critical role in knowledge production, analysis, sharing and dissemination. The availability of world wide affordable networking infrastructure, high speed internet connections, information-processing equipment and training are an essential part of capacity building and education initiatives”.

And in the Draft Action Plan keep the original wording of *[B. Objectives/45/a) benchmarks: all universities to be connected by 2005...]*. This paragraph shall remain as such.

Draft Action Plan Doc.WSIS/PCIP/DT/2-E

- Include the following new paragraph in Section I.A.New 13.bis.

“Ensure that any legal regime on database protection guarantees full and open access to data created with public funding. Restrictions on proprietary data should also be designed so as to maximize availability for academic research and teaching purposes”.

- Include the following new paragraph in Section I.A. New 13.ter.:

“provide long-term support for the systematic and efficient collection, preservation and provision of essential digital data, e.g. population and meteorological data, in all countries”. (*par.4 of Science in the Information Society*)

- Reformulate Section I.A.2.14 as follows:

“14. Open standards and open-source software: Development and deployment of open-source software and standards for efficient ICT networking and cooperation to optimize the availability of data and information should be encouraged:etc.”.

- Include the following new paragraph as a new Section I.A.2.16:

“Promote electronic publishing, affordable pricing schemes and appropriate open source initiatives to make scientific information affordable and accessible on an equitable basis in all countries”

- Include the following new paragraph as a new application in Section 7:

“E-Science:

- ICTs have a central role in the practice, dissemination and advancement of basic and applied scientific research. Scientists build partnerships and international consortia, conduct experiments, collate data, coordinate laboratory activities, and communicate their findings to their peers and the public.

- ICTs are not only a product of science but also a fundamental force for shaping the scientific research agenda and determining how the future of scientific knowledge will unfold and be utilized.

- ICTs provide an historic opportunity to reduce the scientific divide: they improve and increase the transfer of scientific knowledge between developed and developing countries; they strengthen universities and research centers worldwide and they facilitate the involvement of scientists in developing countries in scientific endeavors of their choice around the globe.

- There is an urgent need to support scientific research on:

- the use of existing and innovative information technologies in key areas, such as health, education, and sustainable development.
- the socio-economic value of public-domain information and open access regimes, as exemplified by the World-Wide Web”.

- Include the following new paragraph in Section I.A.8.44:

“Encourage initiatives to increase scientific literacy and consumer awareness of how to select and interpret scientific information published on the world wide web, recognizing the key role of the media in communicating science as well as recognizing the key role of science in communications”.

- Include the following new paragraph in Section I.A. 6.33 “Internet Governance”, after the existing paragraph:

“Recognize that there is an important role for science in developing and implementing the new governance mechanisms that are necessary in the information society”

- Keep the original wording of *[B. Objectives/45/a) benchmarks: all universities to be connected by 2005...]*. This paragraph shall remain as such.

Science in the Information Society¹

Scientific research is one of the key factors underpinning the development of the Information Society. The fundamental technological components of the Information Society: electricity, radio waves, the World Wide Web (www) and the web browser were all first developed in academic laboratories. Ensuring equitable access to scientific knowledge is essential in order to achieve the Millennium goals and the use of Information and Communication technologies (ICTs) now offers incredible opportunities in this regard. Scientific research leads to the development of new technologies themselves and to the production of data and information that, when combined with these technologies, can be of huge benefit to society as a whole. **The essential role of science and scientists in building the Information Society should be clearly acknowledged in the declaration of principles and reflected in the plan of action from WSIS.**

¹ This statement is the product of a workshop “Science in the Information Society”, that was organised by ICSU and the ICSU Committee on Data for Science and Technology (Codata) in partnership with UNESCO. The workshop took place in Paris on 12th March 2003 and involved over 60 scientists, science managers and representatives of international agencies from all over the world. Further information can be found at www.icsu.org.

ICSU, the International Council for Science is a non-governmental organisation that was founded in 1932 and whose mission is to “strengthen international science for the benefit of society”. The ICSU membership is made up of 101 national science academies/research councils and 27 international science unions. Whilst every attempt has been made to make the current document as authoritative as possible, the content does not represent the formal views of individual ICSU members.

Principles

Scientific knowledge and data are of enormous importance in a global Information Society:

- To foster innovation and promote economic development
- For efficient and transparent decision-making, particularly at the governmental level
- For education and training

Scientific data and information should be as widely available and affordable as possible: the more people that are able to share them, the greater the positive effects and returns to society. Scientific knowledge is a “public good“.

The development of new IC Ts opens up **unprecedented opportunities** to ensure universal and equitable access to scientific data and information and to enhance the global knowledge pool. However, **excessive privatization and commercialization of scientific data and information** is a serious threat to the realization of these opportunities for the benefit of society as a whole.

Agenda for Action:

1. Ensure that all universities and research institutions have affordable and reliable high-speed Internet connections to support their critical role in information and knowledge production, education and training.
2. Promote sustainable capacity building and education initiatives to ensure that all countries can benefit from the new opportunities offered by information and communication technologies (ICTs) for the production and sharing of scientific information and data.
3. Ensure that any legislation on database protection guarantees full and open access to data created with public funding. In addition, restrictions on proprietary data should be designed to maximize availability for academic research and teaching purposes.
4. Promote interoperability principles and metadata standards to facilitate cooperation and effective use of collected information and data.
5. Provide long-term support for the systematic collection, preservation, and provision of essential digital data in all countries.
6. Promote electronic publishing, differential pricing schemes, and appropriate open source initiatives to make scientific information accessible on an equitable basis.

7. Encourage initiatives to increase scientific literacy and awareness of how to interpret web-based scientific information.
 8. Support urgently needed research on the use of information technologies in key areas, such as geographical information systems and telemedicine, and on the socio-economic value of public domain information and open access systems.
 9. Recognize the important role for science in developing and implementing the new governance mechanisms that are necessary in the information society.
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