

An hourglass-shaped graphic with a globe inside. The top bulb is dark blue, and the bottom bulb is light blue. The globe is a darker shade of blue. The hourglass is centered on the page.

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*WORLD CONFERENCE ON SCIENCE, JUNE 26 TO
JULY 1, 1999: OUTCOME*

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Abstract. The World Conference on Science was attended by almost 150 national delegations which endorsed a nonbonding declaration and a framework for action. No funding pledges for science aid or minimum national budget commitments for science were adopted. The action guidelines focused on such issues as improving science infrastructure; using science for development; gender and ethnic equality in science; conducting ethical and relevant science; ownership of intellectual property rights, including indigenous biological resources; and suggesting that developing countries apply some of the debt relief offered by the G8 industrial nations to spending on science and education. This report addresses issues relevant to formulating science policy and development assistance.

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World Conference on Science, June 26 to July 1, 1999: Outcome

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Summary

The World Conference on Science, held June 26 to July 1, 1999 in Budapest, was cosponsored by the International Council for Science, an international group that includes the U.S. National Academy of Sciences, and the United Nations Educational, Scientific, and Cultural Organization. Almost 150 national delegations endorsed a nonbinding declaration and a framework for action. Many of the controversial goals in preconference documents (described in CRS Report RS20205), were moderated during the meeting. For instance, no funding pledges for science aid or minimum national budget commitments for science were adopted. The action guidelines focused on such issues as improving science infrastructure; using science for development; gender and ethnic equality in science; conducting “ethical” and “relevant” science; ownership of intellectual property rights, including indigenous biological resources; and suggesting that developing countries apply some of the debt relief offered by the G8 industrial nations to spending on science and education. This report addresses issues relevant to formulating science policy and development assistance. It will not be updated.

Background. The World Conference on Science (WCS), *Science for the 21st Century—A New Commitment*, was held from June 26 to July 1, 1999, in Budapest, cosponsored by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the International Council for Science (ICSU), a nongovernmental organization composed of 95 national science councils or academies, including the U.S. National Academy of Sciences. ICSU was formerly called the International Council of Scientific Unions. The *official goal* of WCS was to “analyze where the natural sciences stand today and where they are heading, what their social impact has been and what society expects from them.”¹ It sought to establish guidelines to make science responsive to developmental challenges and to write a “new social contract for science.” An *unofficial and probably more realistic goal* was to foster better networking and exchange

¹“First Announcement World Conference on Science. Science for the Twenty-First Century: A New Commitment” [www.unesco.org/general/eng/programmes/science/wcs/eng/confen.htm].

of views among scientists and between scientists and policymakers. WCS discussions involved *controversial issues*, including more funding for indigenous “traditional,” as opposed to “modern,” research and development (R&D);² indigenous ownership of intellectual property rights (IPR) and biological resources; equitable ethics for research and for technology transfer; and compensation for brain drain.³ The outcome of the WCS was influenced by the history of policies for funding S&T in developing countries, including failure to implement many recommendations of the United Nations Conference on Science and Technology for Development (UNCSTD); U.S. withdrawal from UNESCO; U.S. arrears on dues payments to the United Nations; and U.S. caution about multilateral S&T development assistance.

The WCS included plenary and panel sessions and drew over 1500 attendees, including almost 150 official national delegations,⁴ and others, representing educational and research establishments, scientists, the industrial sector, intergovernmental organizations, nongovernmental organizations, the media, and the general public. Among the U.S. delegates were Dr. Neal Lane, Assistant to the President for Science and Technology and Dr. Bruce Alberts, president of the U.S. National Academy of Sciences. **See Table 1.** Numerous supplementary meetings were held by interest groups. The Hungarian Academy of Science hosted youth meetings. The Organization for Economic Cooperation and Development, which represents the advanced industrial democracies, was scheduled to hold parallel sessions on international collaboration in science and on priority setting.⁵

The last international meeting on S&T, the UNCSTD, was held in 1979 in Vienna, with mixed results. It recommended establishing a large UN fund to support S&T projects in developing countries. This never occurred and accorded with U.S. policy not to contribute to a UN fund, but to use the UN and its agencies “...to play a broker role bringing together potential projects in developing countries with sources of financing and projects in developed countries with sources of financing and technology in the developed world, including the private sector.”⁶ Also left unresolved was the issue of a code of conduct for technology transfer. Among the more successful follow-up activities was creation of an “Intergovernmental Committee on Science and Technology for Development,” whose projects were administered by the UN Development Program through UN technical agencies such as the Food and Agricultural Organization and through the World Bank, UNESCO, and the private sector. In 1992, the “Intergovernmental Committee” was replaced by a UN Commission on Science and Technology for Development, as part of the UN Economic and Social Council.

²Ehsan Masood, “African Faculties Agree to Link Hands,” *Nature*, March 11, 1999. References in this report to *Nature* without page numbers are available via an index at [<http://helix.nature.com/wcs/>]. See also M. Hassan, “North-south Disparities in the Production and Use of Knowledge,” *Nature*, [<http://helix.nature.com/wcs/c00.html>].

³See CRS report RS20205 for a discussion of preconference issues and positions.

⁴David Dickson, “‘Science Summit’ Sets Ambitious Agenda,” *Nature* 396, November 26, 1998 and David Dickson, “Guidelines Endorsed for ‘New Social Contract’ Between Science and Society,” *Nature*, July 4, 1999, [<http://helix.nature.com/wcs/02.1a.html>].

⁵“Five International Agencies Agree to Participate,” *Nature*, April 1, 1999.

⁶Department of State, *United States Participation in the United Nations. Report by the President to the Congress for the Year 1985*, 157.

Table 1. U.S. Delegation to the World Conference on Science, June 26 - July 1, 1999, Budapest, Hungary(Source: <http://www4.nas.edu/oia/oiahome.nsf>)

U.S. DELEGATION: **Bruce Alberts**, President, National Academy of Sciences; **Paul Berg**, Robert W. and Vivian Cahill Professor in Cancer Research and Director, Beckman Center, Stanford University School of Medicine; **M.R.C. Greenwood**, Chancellor, University of California, Santa Cruz; **Neal Lane**, Assistant to the President for Science and Technology, Executive Office of the President, Office of Science and Technology Policy; **Leon Lederman**, Director Emeritus, Fermi National Accelerator Laboratory; **Jane Lubchenco**, Distinguished Professor and Wayne and Gladys Valley, Professor of Marine Biology, Department of Zoology, Oregon State University; **Shirley Malcom**, Director of the AAAS Directorate for Education and Human Resources Programs, American Association for the Advancement of Science; **F. Sherwood Rowland**, Foreign Secretary, National Academy of Sciences and Donald Bren Research Professor of Chemistry and Earth System Science, Department of Chemistry, University of California, Irvine; **Maxine Singer**, President, Carnegie Institution of Washington; **Michael Southwick**, Deputy Assistant Secretary, Bureau of International Organization Affairs, Department of State; and **Keith Winstein**, Student, IMSA.

U.S. GOVERNMENT STAFF: **Jasemine Chambers**, Senior Policy Analyst, Office of Science and Technology Policy, Executive Office of the President; **Gerald Hane**, Acting Assistant Director for International Affairs, Office of Science and Technology Policy, Executive Office of the President; **Brooke Holmes**, Director, Office of Science and Technology Cooperation, Department of State; **Ray Wanner**, International Organization Affairs, Department of State; **David E. Schindel**, Head, National Science Foundation Europe Office.

NATIONAL RESEARCH COUNCIL STAFF: **John Boright**, Executive Director, Office of International Affairs, National Research Council; **John Campbell**, Program Director, InterAcademy Programs, National Research Council; **Ken Fulton**, Executive Director, National Academy of Sciences; and **Wendy D. White**, Director, Division of International Organizations and Academy Cooperation, Office of International Affairs, National Research Council.

Planning and Agenda. The scientific community played a major role in WCS planning. In 1997 UNESCO set up a 509-member International Scientific Advisory Board, including the President of ICSU, “to give working scientists a greater say in...reform of the way the agency supports science” and to “...help prepare the agenda for a UN world science conference...”⁷ The American Association for the Advancement of Science (AAAS) participated in WCS planning. In December 1997, to dispel “uncertainty about the...[conference, a meeting was]...convened at the initiative of the U.S. National Research Council and involving...a dozen American science NGOs and foreign embassies...to hear the Assistant-Director-general for Science...and the President of ICSU.”⁸

Before the conference, UNESCO prepared two documents that delegates would be asked to approve—the *Draft World Declaration on Science and the Use of Scientific Knowledge* and the *Draft Framework for Action*. They incorporated the views of a background report prepared by ICSU,⁹ reflecting the notions that S&T should be supported as beneficial to society, but that “science is facing difficulties of confidence and investment, as well as problems of an ethical nature,” and that scientists from the developing nations have less access to science than those from the developed nations.¹⁰ UNESCO established “hot links” to the conference documents; to national, regional (Africa, Arab States, Asia and Pacific, Europe, North America, Latin America and Caribbean), and interest group meetings; to satellite events for interest groups and students; and to secondary analysis.¹¹

⁷Declan Butler, “The ‘s’ in UNESCO Seeks Out a New Role,” *Nature*, January 23, 1997, 286.

⁸“Not Just Another General Conference: A Look to the Future?” *Americans for the Universality of UNESCO* 14, February 1998, 10; Philip W. Hemily, “Challenges for International Scientific and Engineering Cooperation,” Presented at the AAAS Consortium of Affiliates for International Programs Annual Meeting held in Seattle in conjunction with the 1997 AAAS Annual Meeting on February 16, 1997.

⁹“ICSU Paper Seeks More International Collaboration,” *Nature*, March 25, 1999.

¹⁰UNESCO/ICSU, “First Announcement,” *Science for the 21st Century*.

¹¹David Dickson, “Physics Workshop Calls for New ‘Contract’ With Society,” *Nature*, April 15, 1999. There were unofficial preparatory meetings by the Leadership for Environment and Development group, by women’s groups (“Draft Declaration ‘Pays Insufficient Attention to Women’s Issues,’” *Nature*, May 13, 1999), and by the “Pontifical Academy of Sciences: Science for Survival and Sustainable Development,”

(continued...)

Outcome. The preconference *Declaration* and *Framework for Action* reflected divisions between developed and developing nations. They embodied some divisive principles and guidelines reflecting “third world positions” that were, for the most part, moderated or modified before or during the conference. News reports indicate that among the major unofficial benefits of the conference were networking among scientists from developed and developing countries and giving scientists from the developing countries “...direct access to key policymakers and heads of funding agencies from developed countries, as well as some insight into the unfamiliar worked of international diplomacy.”¹² However, delegates from the developing countries reportedly complained that the lack of official preparatory meetings that usually are held before large UN conferences prevented them from developing cohesive alliances to support their goals and therefore their demands were diluted.¹³

The conference unanimously endorsed two nonbinding documents, the final versions of the aforementioned *Declaration on Science and the Uses of Scientific Knowledge*, a statement of policies,¹⁴ and the *Science Agenda: Framework for Action*, that suggested guidelines for implementation.¹⁵ The *Declaration* espoused a “new social contract between science and society that endorses social support for science funding, while encouraging scientists to accept responsibilities to use all the sciences, including social science and engineering, to improve quality of life and sustainable development. It noted that some scientific advances “...have also led to environmental degradation and technological disasters...”¹⁶ and that the scientific community should “...engage [in discussion] with the public over such issues as food safety, genetically modified foodstuffs, and biomedical problems.”¹⁷ Also, the document emphasized that S&T development and national research systems were indispensable to economic development in the developing countries.

Before the conference some sought to have scientists adopt a Hippocratic-like oath to conduct ethical science. The *Declaration* modified this to propose that “ethics and social responsibility” be part of scientific training.¹⁸ The documents endorsed efforts to raise the contributions of women to science, to create an international network of women scientists, and “special efforts” to include the disabled, indigenous people, and ethnic

¹¹(...continued)

Nature. For documents, see: [http://www.unesco.org/science/wcs/]; [http://www.wcs.budapest.hu]; [http://helix.nature.com/wcs/]; and [http://www4.nas.edu/oia/oiahome.nsf].

¹²Eshan Masood, “Satisfaction for Most, Disappointment for Some,” *Nature News +*, July 2, 1999 [http://helix.nature.com/wcs/1news/02-1b.html].

¹³Masood, “Satisfaction,” *idem*.

¹⁴At [http://helix.nature.com/wcs/1news/02-1g.html].

¹⁵At [http://helix.nature.com/wcs/02-1h.lhtml]. See also: [http://www.unesco.org/opi/science].

¹⁶Dickson, “Guidelines,” July 4, 1999, citing “African Countries Pledge to Use Debt Relief for Science,” June 29, 1999.

¹⁷Peter Pockley, Rapporteur-general Describes ‘Essence’ of Statements,” *Nature News+*, July 4, 1999, [http://helix.nature.com/wcs/5opinion/02-5b.html].

¹⁸Dickson, July 4, 1999, *op. cit.*

minorities in science.¹⁹ The *Declaration* rejected “...calls from some nations... to suggest as a target that all countries aim to eventually spend one percent of their gross national product on research and development,” as endorsed by the 1979 UNCSTD.²⁰ However, it did endorse national, regional and international public and private funding to enable developing countries to build needed research and educational infrastructure. Also, the delegates endorsed the idea of a recent debt relief initiative by the G8 creditor countries as an appropriate mechanism for developing countries to increase funding for science and education. The *Framework* proposed that donor countries and UN agencies should pool resources and strengthen national research systems. It also said high-quality science education should be brought to “remote locations” via Internet-based systems.

There was controversy at the conference about balancing protection for IPR while accommodating the views of some developing countries that IPR represents “monopolistic exploitation” of information.²¹ Some countries declared their ownership and a share in the profits of research that uses biological resources and genetic materials within their national boundaries—in conflict with the interests of some international companies²² dealing with agribusiness and pharmaceuticals. Others sought IPR rewards for indigenous knowledge that predated but was used in the scientific revolution. The *Declaration* compromised on this point by saying that traditional knowledge systems “...should be brought closer to modern scientific knowledge...in areas such as the conservation of biological diversity, the management of natural resources, the understanding of natural hazards, and the mitigation of their impact.”²³ It avoided discussing the patenting of genetic materials, but endorsed the protection of IPR while recognizing the importance of access to data for scientific progress and the need for mutually supportive measures to protect IPR and dissemination of scientific knowledge. The *Framework* said that the World Intellectual Property Organization “should constantly address the question of knowledge monopolies,” and that “the World Trade Organization, during new negotiations of the Trade Related Intellectual Property [TRIPS] Agreement, should incorporate into this Agreement tools aimed at financing the advancement of science in the South with the full involvement of the scientific community”²⁴ It also “called on governments to develop legal frameworks “...to accommodate the specific requirements of developing countries and traditional knowledge, sources, and products, to ensure their recognition and adequate protection on the basis of the informed consent of the customary or traditional owners of this knowledge.”²⁵ The *Framework* endorsed research networks, regional S&T parks, technology “incubators” and assistance to small businesses. Before the conference developing countries were interested in “...compensating developing countries for their

¹⁹Robert Koenig. Science Blueprint is High on Ideal, Light on Details. *Science*, v. 285, July 9, 1999, pp. 174-175.

²⁰Dickson, "Guidelines," July 4, 1999, op. cit.

²¹“Science By Everyone,” *The LOKA Institute*, [loka.org/pubs.nature012899.htm] and “Moulding Intellectual Property Laws to Developing Country Needs,” *Nature*, [helix.nature.com/wcs/c11.html].

²²See also Declan Butler, “WHO Bioethics Code Set to Stir Debate,” *Nature*, March 18, 1999.

²³Dickson, July 4, 1999, op. cit.

²⁴See the *Framework* document at [http://helix.nature.com/wcs/02-1h.html].

²⁵Dickson, July 4, 1999, op. cit.

‘loss of trained scientists and technicians to the more developed countries;’²⁶ but the *Framework* more moderately said that UNESCO “may catalyse more symmetric and closer interaction of science and technology personnel across the world, and the establishment of world-class education and research infrastructure in the developing countries....”²⁷

Before the conference, the president of the U.S. National Academy of Sciences proposed to create an InterAcademy Center, modeled on the U.S. National Research Council, to assemble international expert panels to advise the UN and the World Bank on S&T-related issues. This expands upon the collaboration in the InterAcademy Panel on International Issues, an informal information exchange network of 80 national science academies, that will meet in May 2000.²⁸ The British Science Museum/British Association for the Advancement of Science proposed to establish an International Center for the Communication of Science for journalists, broadcasters and exhibition organizers from developing countries.²⁹ The conference did not endorse these specific proposals, but it endorsed programs to train journalists and others to increase public awareness and supported strengthening international scientific advisory processes in cooperation with UN agencies and international scientific organizations.

The *Framework* document said ICSU and UNESCO should follow-up by developing initiatives for cooperation with the UN organizations and bilateral donors, but that national governments and regional organizations also were responsible for action. If there were U.S. follow-up, it would probably be likely to occur via bilateral aid and through international organizations to which this nation belongs. The United States withdrew from UNESCO in 1984,³⁰ but participates in selected UNESCO programs deemed in the U.S. national interest. There is debate over whether the United States should rejoin UNESCO.³¹ In addition, the United States currently owes the UN more than \$1 billion for its assessed contributions to the UN regular budget and peacekeeping accounts. Congress has linked funding for these arrears to reforms it expects the UN to carry out. Legislation, S. 886, was passed in the Senate to authorize funding to pay UN dues.³² However, Congress has limited the total U.S. funds available for contributions to all international organizations, making a U.S. return to UNESCO unlikely in the immediate future since a U.S. contribution to the UNESCO regular budget would have to come from the same limited State Department appropriations account for international organizations.

²⁶K.S. Jayaraman and Ehsan Masood, “India leads Call for Greater Protection of Indigenous Knowledge,” *Nature*, February 4, 1999.

²⁷See the *Framework* document at [<http://helix.nature.com/wcs/02-1h.html>].

²⁸“Worldly Scientists,” *Science*, April 30, 1999, 727 and “U.S. Academy Proposes Global Science Advisory Body,” *Nature*, May 13, 1999.

²⁹David Dickson, “International Science Communication Centre Proposed,” *Nature*, April 8, 1999.

³⁰The Secretary of State’s 1983 notice of intention to withdraw cited UNESCO’s politicization, hostility towards the basic institutions of a free society, and unrestrained budgetary expansion. See *UN System Funding: Congressional Issues*, CRS Issue Brief IB86116, by Vita Bite.

³¹“Former Secretaries of State Urge Congress to Pay UN Dues,” *Washington Fax*, March 23, 1999.

³²See: *U.N. Arrears Legislation in the 106th Congress*, CRS report RS20262, by Vita Bite.