

# **Annual Progress Report**

## **Initiative on Science and Technology for Sustainability**

### **November 2002**

The international *Initiative on Science and Technology for Sustainability (ISTS)* was founded in 2001 to pursue three broad and interrelated goals:

- **expanding and deepening the research and development agenda** of science and technology for sustainability;
- **strengthening the infrastructure and capacity** for conducting and applying science and technology for sustainability; and
- **connecting science and policy** more effectively in pursuit of a transition toward sustainability.

The Initiative is an open-ended network founded in response to the October 2000 Friibergh Workshop on Sustainability Science.<sup>1</sup> Policy is set by an international Steering Group, with coordination provided by two co-conveners (Robert Kates and Akin Mabogunje) and day-to-day support is supplied by a small Secretariat, currently based at Harvard University.<sup>2</sup> Funding for the Initiative has come from the David and Lucile Packard Foundation and the U.S. National Oceanic and Atmospheric Administration's Office of Global Programs, with additional support from numerous governments and institutions around the world.

#### **Accomplishments of the Initiative's First Year**

##### **1. Expanding and deepening the research and development agenda of science and technology for sustainability**

In pursuit of its first goal, the Initiative pursued the Friibergh finding that existing global discussions on the challenges of harnessing science and technology to sustainability needed to be complemented with more localized, place-based perspectives. A total of 302 people from 51 countries participated in eight workshops.

##### **1.1 Regional Workshops**

To develop such perspectives, the Initiative organized a series of regional workshops. Each of these locally organized workshops brought together from their respective regions individuals involved in research, development, and environmental protection. Each asked participants to assess regional priorities for harnessing science and technology in efforts to promote sustainability, to characterize obstacles that impeded progress, and to identify priorities for action. A steering group under the leadership of Dr. Robert Corell and consisting of the workshop chairs provided for overall coordination of the workshop series. The five regional workshops had 235 participants from 39 countries.

- **Abuja, Nigeria:** 13-15 November 2001, organized locally by the Nigerian National Committee on Sustainability Science, chaired by Professor Akin L. Mabogunje, Development Policy Centre, Ibadan, Nigeria (report at [http://sustainabilityscience.org/events/abuja-sustsci0111\\_chair-statement.pdf](http://sustainabilityscience.org/events/abuja-sustsci0111_chair-statement.pdf); cited here as ISTS/Abuja, 2001);
- **Chiang Mai, Thailand:** 4-6 February 2002, organized locally by Chiang Mai University and University Kebangsaan Malaysia, co-chaired by Dr. Louis Lebel, Faculty of Social Sciences, Chiang Mai University and Science Coordinator for the Southeast Asian Regional Committee (SARCS) for START, Bangkok, Thailand, and Dr. Mohd Nordin Hasan, Institute for Environment and Development (LESTARI), University Kebangsaan Malaysia, Bangi, Malaysia (report at [http://sustainabilityscience.org/ists/docs/ists\\_regws\\_chiangmai\\_synthesis.pdf](http://sustainabilityscience.org/ists/docs/ists_regws_chiangmai_synthesis.pdf); cited here as ISTS/Chiang Mai, 2002), and a series of small working group meetings on Sustainability and Human Settlements in Asia held on the 29-30 July 2002, at the Rama Gardens Hotel, Bangkok, Thailand (draft report at [http://sustainabilityscience.org/ists/nextsteps/ists\\_prgprt\\_ssi\\_asia.pdf](http://sustainabilityscience.org/ists/nextsteps/ists_prgprt_ssi_asia.pdf));
- **Bonn, Germany:** 27 February - 1 March 2002, organized locally by the International Human Dimensions Programme on Global Environmental Change (IHDP), chaired by Dr. Jill Jaeger, Executive Director, International Human Dimensions Programme on Global Environmental Change, Bonn, Germany (workshop supported by the German Federal Ministry for Education and Research; report at [http://sustainabilityscience.org/ists/docs/ists\\_regws\\_walberberg.pdf](http://sustainabilityscience.org/ists/docs/ists_regws_walberberg.pdf); cited here as ISTS/Bonn, 2002);
- **Santiago, Chile:** 5-7 March 2002, organized locally by the Economic Commission for Latin America and the Caribbean (ECLAC), chaired by Dr. Gilberto Gallopín, Regional Advisor on Environmental Policies, Division of Environment and Human Settlements, Economic Commission for Latin America and the Caribbean, UNESCO, Santiago, Chile (report at [http://sustainabilityscience.org/ists/docs/ists\\_regws\\_santiago\\_summary.pdf](http://sustainabilityscience.org/ists/docs/ists_regws_santiago_summary.pdf); cited here as ISTS/Santiago, 2002);
- **Ottawa, Canada:** 25-26 March 2002, organized locally by Environment Canada, the Policy Research Institute, and the North American Free Trade Agreement Commission for Environmental Cooperation (this workshop focused on regional-scale issues of science and technology for sustainability in Canada, Mexico, and the United States; report at [http://sustainabilityscience.org/ists/docs/ists\\_regws\\_ottawa\\_rpt.pdf](http://sustainabilityscience.org/ists/docs/ists_regws_ottawa_rpt.pdf); cited here as ISTS/Ottawa, 2002).

In addition, a regional workshop of Arab States is tentatively scheduled for May 2003, organized locally by the Library of Alexandria, Egypt, and co-chaired by Dr. Ismail Serageldin, Director, Library of Alexandria, and Dr. Mohamed Hassan, Executive Director, Third World

Academy of Sciences (TWAS). Discussions are underway with Eileen Shea at the East-West Center in Hawaii and the Pacific Science Association to explore the idea of a sustainability science roundtable for Oceania and with the African Academy of Sciences for a pan-African roundtable in 2003.

A summary of the workshop findings from the regional workshops is provided in Annex 2 of "Science and Technology for Sustainable Development: Consensus Report of the Mexico City Synthesis Workshop, 20-23 May 2002." Cambridge, MA: ISTS (report at [http://sustainabilityscience.org/ists/synthesis02/output/ists\\_mexico\\_consensus.pdf](http://sustainabilityscience.org/ists/synthesis02/output/ists_mexico_consensus.pdf); cited here as ISTS et al., 2002). A consolidated record of the regional workshops is available at <http://sustainabilityscience.org/ists/events.htm>.

## **1.2 Consultations**

Members of the Initiative have worked to shape the international agenda on the issue of science and technology for sustainable development via consultations with many organizations.

- Akin Mabogunje and Calestous Juma were members of the U.S. National Research Council's Committee on Geographic Foundations of Agenda 21 that helped to guide the formulation of the position of the United States at WSSD on the role of geographical information sciences in the implementation of Agenda 21 in Africa. The results of this effort are reflected in the WSSD Plan of Implementation. The report on Geographical Information for Sustainable Development in Africa is available at <http://www.nap.edu/books/0309084784/html/>; cited here as US NAS, 2002.
- Robert Frosch chairs, and Calestous Juma serves on a U.S. National Research Council's Committee that has prepared a "Survey and Analysis of Scientific Advice on Sustainable Development to International Organizations." See <http://www4.nationalacademies.org/webcr.nsf/5c50571a75df494485256a95007a091e/6a2cd15812aae9e485256b120072937c?OpenDocument>.
- Pamela Matson chairs, and William Clark serves on, the U.S. National Academies "Roundtable on Science and Technology for Sustainability" that will engage senior decision-makers from government, industry, academia, and non-profit organizations that are in a position to play a strong role in promoting sustainability. The Roundtable will work to establish an ethic of sharing of information and analyses of issues related to sustainability. The Roundtable will provide a forum for periodic gathering to identify and discuss issues of mutual concern. We believe this "convening role" is critical to sustainability work, given the need for true partnerships across sectors.
- During the Preparatory Committee meetings, Calestous Juma consulted with the governments of Argentina, Brazil, India, Indonesia, Nigeria, South Africa, and the United Kingdom to shape the WSSD agenda and develop the core issues concept further. He also

contributed to national efforts in Norway, Canada, and Guyana to formulate positions for WSSD.

- Mohamed Hassan at TWAS had formal and informal contacts to discuss the sustainability science initiative with representatives of a long list of governments, intergovernmental organizations, nongovernmental organizations, academic institutions, scientific research organizations, the business community, Heads of UN agencies, and environmental conventions.<sup>3</sup>
- Robert Corell briefed the Norwegian Research Council, the US Congress (a briefing to address “Science for Sustainable Development: Policy and Practice” that was cosponsored by the American Chemical Society and the National Council for Science and the Environment for about 120 staff members), the Arctic Council, and other domestic and international fora. During travels to the regional workshops, he held Roundtable discussions with government officials in Sweden, Norway, Finland, Denmark, UK, and Japan.
- Jill Jäger presented the results of the Mexico City Synthesis Workshop and participated in a panel discussion at a special session chaired by Jane Lubchenco, Incoming President of ICSU, at the ICSU General Assembly in September 2002 in Rio de Janeiro, Brazil.
- William Clark organized a Symposium on “Science and Technology for a Transition toward Sustainability” at the American Association for the Advancement of Science Annual Meeting held in February 2002. Speakers included: Robert Kates on “Globalization: Emerging Interactions Among Global Environmental Changes and Social Transformations,” B.L. Turner II on “Vulnerability in Human-Environment Relationships,” Gilberto Gallopin on “Epistemological Issues in Sustainability Science,” Robert Corell gave a “progress report on a series of regional workshops around the world designed to broaden and deepen an agenda for science and technology for sustainability,” and Jill Jaeger on “Implementing a Sustainability Science Research System.” Their talks are available at <http://sustsci.harvard.edu/events/aaas02.htm>.
- Steering Group members have been participants in a series of “Sustainability Days” Conferences that address how we can create a more sustainable way of living. John Schellnhuber organized the “First Sustainability Days” conference that was held at the Potsdam Institute for Climate Impact Research in Germany in October 2001. Jane Lubchenco and John Schellnhuber were keynote speakers at the “Second Sustainability Days: State of the Planet” Conference held at Columbia University in May 2002, and William Clark was on the organizing committee. The “Third Sustainability Days” conference will be held at the University of East Anglia, UK in September 2003.
- Together, steering group members presented at least 50 lectures on science and technology for sustainability in a wide range of venue including colleges and universities, conferences, and organizational briefings.

## **2. Strengthening the infrastructure and capacity for conducting and applying science and technology for sustainability**

In pursuit of its second goal, the Initiative – in partnership with TWAS and the International Council for Science (ICSU) – undertook a critical evaluation of the capacity of existing international, regional, and national research and development systems (including private sector businesses and foundations) to support the more effective harnessing of science and technology for sustainability. Workshops brought together a cross section of entrepreneurs who had been especially successful in building such linkages with a goal of sharing lessons and identifying common needs. A total of 68 participants from 34 countries attended the Trieste and Cambridge workshops.

- Trieste Workshop organized locally by the Third World Academy of Sciences under the auspices of the ISTS on *Science, Technology and Sustainability: Harnessing Institutional Synergies* (Trieste, Italy, 6-9 February 2002), co-chaired by Mohamed Hassan, Calestous Juma, and William Clark (report at [http://sustainabilityscience.org/ists/docs/twas\\_rpt\\_v1\\_020222.pdf](http://sustainabilityscience.org/ists/docs/twas_rpt_v1_020222.pdf); cited here as ISTS/Trieste, 2002);
- Cambridge Workshop organized locally by Harvard University's Weatherhead Center for International Affairs under the auspices of the ISTS, ICSU, and TWAS on *Mobilizing Science and Technology for Sustainable Development* (Cambridge, Massachusetts, USA, 10-12 April 2002), co-chaired by William Clark, Mohamed Hassan, Gisbert Glaser, and Calestous Juma (report at [http://sustainabilityscience.org/ists/docs/ists\\_cfia\\_rpt\\_final.pdf](http://sustainabilityscience.org/ists/docs/ists_cfia_rpt_final.pdf); cited here as ISTS/Cambridge, 2002).

## **3. Connecting science and policy more effectively in pursuit of a transition toward sustainability**

In pursuit of its third goal, the Initiative collaborated with a variety of other organizations in efforts to bring together knowledge and action in pursuit of sustainability:

### **3.1 Forum on Science and Technology for Sustainability**

The Initiative has devoted substantial attention to integrating its own multiple strands of work, and to facilitating the emergence of a mutually supportive network linking the many individuals and organizations involved in efforts to better harness science and technology to sustainability goals. In support of this goal, the Initiative operates the web-based *Forum on Science and Technology for Sustainability*, at <http://sustainabilityscience.org/>. The Forum seeks to provide a common point of access to evolving discussions over the core questions and challenges facing the field, documents that chart the field's aims and progress, events of special interest to the community, and programs and institutions that are playing a special role in the evolution of the

field. The *Network for Science and Technology for Sustainability* is an effort to help build a virtual community linking disparate scholars, managers, and decision makers, and to promote the sharing of knowledge, ideas, and goals among a community working on science and technology for sustainability. Individuals interested in these issues may join the Network as a means of telling others about their work and interests.<sup>4</sup>

The Forum has a rapidly growing audience with more than 5,000 visitors per month by mid-2002. Its email update bulletin has some 825 subscribers. And it supports a network of nearly 160 individuals from more than 35 countries who use the facilities of the Forum to exchange information on their respective efforts to harness science and technology to sustainability. Descriptions of 65 of their projects are available on the Forum. Approximately 55% of the Network members are outside the United States, from both developed and developing countries.

The Forum is unique, because it is the only web site providing in-depth, selective content to a community working on science and technology for sustainability. While other web sites (e.g., SciDev.net) seek to provide access to ongoing research, and still others (e.g., the SD Gateway) focus on sustainable development in general, the Forum is the only one focusing strictly on science and technology for sustainable development, and engaging both the research and policy communities in this area.

### **3.2 Mexico City Synthesis Workshop on Science and Technology for Sustainable Development:**

A second integrative activity of the Initiative was the Mexico City Synthesis Workshop on Science and Technology for Sustainable Development held 20-23 May 2002 and hosted by the National Autonomous University of Mexico on behalf of a joint Organizing Committee from ICSU, TWAS, and the ISTS (ISTS, TWAS, ICSU, 2002).<sup>5</sup> The Workshop brought together leaders of, and participants in, more than a dozen fact-finding studies, discussions, conferences, and workshops conducted over the two years leading up to the World Summit on Sustainable Development (WSSD) by the international scientific and technology community. Each of these contributing sessions had addressed the question “How can science and technology contribute more effectively to achieving society’s goals of sustainable development?” from a particular perspective. These perspectives included global views from international science organizations, regional views grounded in grass-roots efforts to harness science and technology in support of sustainable development, assessments of potential contributions from global change science, and critical analyses of experience in designing institutions and financing for science and technology directed toward solutions to sustainability problems. Thirty-six people from 18 countries attended the workshop. Findings of the individual sessions were summarized in a background paper for the Mexico City Workshop available at [http://sustainabilityscience.org/ists/synthesis02/output/ists\\_mexico\\_consensus.pdf](http://sustainabilityscience.org/ists/synthesis02/output/ists_mexico_consensus.pdf) (Annex 2), cited here as Clark ISTS et al., 2002. Participants in the Workshop reviewed the background paper and the individual contributing reports in addition to bringing their own rich backgrounds of experience to the table. They then formulated a consensus report, available at

[http://sustainabilityscience.org/ists/synthesis02/output/ists\\_mexico\\_consensus.pdf](http://sustainabilityscience.org/ists/synthesis02/output/ists_mexico_consensus.pdf), cited here as Clark ISTS et al., 2002. This was presented to President Vicente Fox of Mexico at the close of the Workshop and tabled by ICSU at the 4<sup>th</sup> Preparatory Workshop for the WSSD, immediately following the Mexico City Workshop. It was subsequently published by ICSU in their Series on Science for Sustainable Development, No. 9, see <http://www.icsu.org>.

### **3.3 Activities related to the World Summit on Sustainable Development**

Members of the Initiative participated actively in the preparation of the ICSU-World Federation of Engineering Organizations (WFEO)-led effort to provide perspectives on science and technology for sustainability in the preparatory process for WSSD, in proposals for Summit-based partnerships, and at the Forum on Science, Technology and Innovation for Sustainable Development. Leadership was provided by Mohamed Hassan, a member of the Initiative Steering Group as well as Executive Director of TWAS, and by Calestous Juma of Harvard through his advisory work to the UN.

#### **Preparatory Committee Meetings for WSSD**

During the second Preparatory Committee meeting in the lead-up to the United Nation's WSSD, Calestous Juma presented a side event seminar on "Science and Technology for Sustainable Development: Proposals for WSSD." This event was highlighted in the Earth Negotiations Bulletin that is distributed widely amongst the UN WSSD Secretariat, government delegates, and stakeholder participants, and is said to have had a substantial impact on framing the substantive agenda deliberations for the WSSD.<sup>6</sup>

Mohamed Hassan, the Executive Director of TWAS and Calestous Juma from Harvard incorporated the results of the Mexico City Workshop in their statements and dialogue papers that were discussed at the meeting of the Fourth Preparatory Committee for the WSSD held in Bali in June 2002 and at the WSSD in August. Presentations were made both at the Plenary and at the High Level Roundtables with the Heads of State. Opinions and answers from the S&T community were conveyed in the six thematic Plenary Sessions of the Johannesburg Summit, in particular about the WEHAB areas (water, energy, health, agriculture, and biodiversity) highlighted by Secretary-General Kofi Annan.

#### **Partnership Initiatives (Type II Agreements)**

ISTS participated in the discussion and drafting of numerous partnership initiatives (Type II Agreements), including:

- "Science and Technology for Sustainable Development," a proposal that was reviewed by participants in the Mexico City Synthesis Workshop and revised by ICSU and its partners (see [http://sustainabilityscience.org/ists/synthesis02/output/st4sd\\_type-II\\_icsu.pdf](http://sustainabilityscience.org/ists/synthesis02/output/st4sd_type-II_icsu.pdf));
- "Mobilizing the New Social Contract on S&T for Sustainable Development: the United Nations University/Institute for Advanced Study Higher Education Fellowship Initiative on Science for Sustainability" between TWAS and UN University; and
- "Connecting Communities: linking science and technology research to the needs of sustainable development" between TWAS and LEAD.

#### WSSD Forum on Science, Technology and Innovation for Sustainable Development

In cooperation with ICSU, WFEO, and the South African Ministry of Science and Technology, Mohamed Hassan of TWAS helped to organized the Forum on Science, Technology and Innovation for Sustainable Development (Science Forum) that took place at Ubuntu Village, South Africa as part of WSSD. TWAS organized panels on “Capacity Building in Science and Technology” and a “High Level Discussion on the Role of S&T for Sustainable Development in Africa.”<sup>7</sup> Jill Jaeger presented the Mexico City Synthesis report on the opening day of the Forum. Robert Corell, Mohamed Hassan, Jill Jaeger, Calestous Juma, and ISTS fellows Diego Malpede (TWAS) and Vanessa Timmer (Harvard) represented the Initiative at the Forum.

#### WSSD follow-up activities

Calestous Juma is currently assisting the United Nations systems in exploring how to effectively integrate science and technology in the implementation of the outcomes of WSSD. He is co-convenor of the Task Force on Technology Transfer under the United Nations Millennium Development Project through which the results of WSSD will be implemented. The project is hosted by the United Nations Development Programme (UNDP). He is also working with other UN agencies such as the United Nations Industrial Development Organization (UNIDO) in Vienna, the United Nations Conference on Trade and Development (UNCTAD) in Geneva, and the United Nations University (UNU) in Tokyo.

#### **4. Reflections on the Initiative’s niche**

The international ISTS is a direct outgrowth of the renewed interest around the world in implementing knowledge-based strategies for meeting human needs while preserving the life support systems of the planet. The Initiative had its origins in a range of activities including the program of the Scientific Committee on Problems of the Environment (SCOPE), several initiatives of the Third World Network of Scientific Organizations (TWNSO), the report of the U.S. National Academy of Science *Our Common Journey: A Transition Toward Sustainability*, the World’s Scientific Academies’ Conference on a *Transition to Sustainability in the 21<sup>st</sup> Century* (May 2000), the Friibergh Workshop on *Sustainability Science* (October 2000), and the Global Change Communities’ Open Science Conference on *Challenges of a Changing Earth* (July 2001). Today, over one year into the two-year period that was centered on the WSSD, the Initiative joins the active involvement of many organizations and groups including the Earth System Science Partnership projects on carbon, food and water; the Inter-Academy Council efforts on scientific capacity for development and food security in Africa; the Science and Technology for Sustainability program of the U.S. National Academies, the LEAD-TWAS effort to develop scientists and technologists for environment and development (STEAD), and the new program on Science for Sustainable Development adopted at the ICSU’s General Assembly. In the midst of such growing interest and involvement, what is the role for the Initiative over the next several years?

The Initiative was conceived as a means of complementing efforts, such as those listed above, through its roles as convener, facilitator, and advocate for sustainability science and technology. The aim was and remains:

- to serve as a boundary organization that facilitates the dialog about science and technology needs for achieving the goals of sustainable development by bringing individuals working in science and technology, development, and environmental protection to the same table on an equal basis;
- to enable the rapid establishment of global-regional linkages;
- to encourage disparate scientific disciplines to come together in order to contribute solutions to the challenges of sustainable development; and
- to nurture the next generation of young sustainability scientists and technologists.

The Initiative was always intended to be just that, an *initiative*, with much flexibility but with limited life and function, supportive of – but not conducting – actual R&D.

## **5. Plans for the future**

The Initiative made an early commitment to reassessing its role in the wake of the WSSD. To this end, initial discussions were held among members of the Steering Group and with leaders of TWAS, ICSU, and the Global Change Programmes during the Mexico City Synthesis Workshop in May 2002. As a result of these discussions, Robert Kates in his capacity as Initiative co-convener took the lead in drafting an option paper on possible futures for the Initiative. This paper was discussed at a meeting of the ISTS Steering Group held at Harvard on 5-6 November 2002. That meeting had two goals: 1) to determine what, if any, need exists for a follow up to ISTS after our existing Packard Foundation grant ends in October 2003; and 2) to discuss priority activities to be supported over the next year using the remaining funds of the existing grant and changes in the organization of the secretariat function needed to support those activities.

The Initiative's Steering Group unanimously agreed that the Initiative needs a five-year life to complete its initial goals; to maintain its flexible services and opportunities for convening, facilitating, and sharing information; and to help create a decentralized, nodal infrastructure and partnerships for the long-term provision of science and technology for sustainability. Detailed terms of reference (goals, strategy, etc.) for this Phase-II effort are being worked out based on our discussions at the Steering Group meeting. Central to the Phase-II concept discussed by the SG is its desire to foster the evolution of the Initiative into a promoter and catalyst of an "action plan" for moving sustainability science into practice around the world. In this role, the Initiative would seek to catalyze and encourage, but not to undertake, needed research. It would seek to collaborate with, but to retain a voice independent of, the more formal organizations pursuing particular sustainability science efforts (e.g., ICSU, TWAS, InterAcademy Council, etc.)

The second goal of our November Steering Group meeting was to discuss priority activities to be supported over the next year using the remaining funds of the existing grant and changes in

the organization of the Secretariat function needed to support those activities. The second year of the Initiative will continue to implement the activities outlined in the original proposal to the Packard Foundation, but put more emphasis on including the private sector and the technology, development, and policy communities in the various activities. In particular, we propose to focus future efforts on the development and technology side of the WEHAB (water, energy, health, agriculture, and biodiversity) framework of the UN Millennium Development Goals. Priorities areas for work were discussed and William Clark was charged to discuss the appropriateness of rebudgeting the existing Packard award to make this happen with the Packard Foundation.

The Steering Group decided to move the Secretariat function outside of the United States to an international location. The Trieste complex anchored by the Third World Academy of Sciences was identified. Jill Jaeger has agreed to take on the role of ‘Coordinator;’ the title is our effort to reflect the unconventional networking character of the Initiative. As Coordinator, she would serve as the head of the Secretariat of the Initiative. Diego Malpede, our fellow at TWAS, will assume the ‘Associate Coordinator’ position. William Clark and Nancy Dickson are prepared to continue to put in substantial work in support of activities during the transition. William Clark was charged with discussing this proposal with the Packard Foundation.

The sponsors of the Mexico City Synthesis Meeting (ISTS, ICSU, and TWAS) agreed to meet after the WSSD to review needs and opportunities for further collaboration in harnessing science and technology for sustainability. Results of the ISTS Steering Group review were carried forward to this larger meeting on overall strategies for advancing sustainability science that brought together leadership of the Initiative, ICSU, TWAS, and the Global Environmental Change programs in Paris on 14-15 November 2002, under the chairmanship of Prof. Jane Lubchenco, President of ICSU. The participants agreed that further efforts to develop and implement the action agenda shaped at Mexico City were still needed in the wake of the Summit, and that great opportunities exist for pursuing that work through an expanded consortium incorporating other groups from the sciences, engineering and development communities. The Paris group agreed to explore the prospects for bringing together a broadly representative planning group to carry forward such a program. Draft terms of reference for such a group will be developed and widely circulated over the next couple of months. In the meantime, in order not to lose momentum from the Mexico City and WSSD process, ISTS, ICSU and TWAS agreed to move ahead, in close collaboration with the Earth System Science Partnership and others, with rapid action items identified in the Mexico City consensus document and in the planned activities of the individual partners. A more detailed report of this meeting will be submitted separately.

## **6. Key documents produced by the Initiative and its members**

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## **Endnotes:**

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<sup>1</sup> See <http://sustainabilityscience.org/events.htm#FW>

<sup>2</sup> Co-Conveners for the Initiative are Robert Kates, Independent Scholar, and Akin Mabogunje, Development Policy Center, Nigeria. The Steering Group for the Initiative includes: Robert Corell, American Meteorological Society and Harvard University; Robert Frosch, Harvard University; Gilberto Gallopín, Economic Commission for Latin America and the Caribbean; Mohamed Hassan, Third World Academy of Sciences; Jill Jäger, International Human Dimensions Programme on Global Environmental Change; Narpat Jodha, International Centre for Integrated Mountain Development; Calestous Juma, Harvard University; Louis Lebel, Chiang Mai University; Jane Lubchenco, Oregon State University; Pamela Matson, Stanford University; James McCarthy, Harvard University; Jose Sarukhán, Universidad Nacional Autónoma de México; and John Schellnhuber, Potsdam Institute for Climate Impact Research and the Tyndall Center for Climate Change Research. The Secretariat is directed by William Clark and Nancy Dickson, Harvard University.

<sup>3</sup> Sweden's Environmental Advisory Council; European Union DG XVI; African Centre for Technology Studies; International Environmental Resources (consulting firm); National Council for Science and the Environment; Foundation for Education Science and Technology, South Africa; Eskon Consulting South Africa; Division for Sustainable Development, DESA UN New York; Convention on Biological Diversity Secretariat; Framework Convention on Climate Change Secretariat; Convention to Combat Desertification; Department of Trade and Industry, United Kingdom; Earth Institute, Columbia University; UNEP Nairobi and Latin America; World Meteorological Organization; United Nations Industrial Development Organization; Division of Environment, Venezia, Italy; International Energy Agency, OECD; International Centre for Trade and Sustainable Development; International Foundation for Science; Monsanto, United States; Assobiotech, Italy; Foundation for International Environmental Law and Development; Sancroft, United Kingdom; Commonwealth Human Ecology Council; CISME, Nigeria; Energy Environment Consulting GMBH, Austria; Royal Institute of International Affairs, United Kingdom; Interdisciplinary Institute on Energy, Natural Resources and Sustainable Development, Mexico; World Resources Institute; World Trade Organization; United Nations Conference on Trade and Development; World Intellectual Property Organization; Fundacion Ambiente y Recursos Naturales, Argentina; Fundacion Ecologica Universal, Argentina; United Nations Institute for Training and Research; International Federation of Agricultural Producers; UNESCO; Indira Gandhi Institute of Development Research, India.

<sup>4</sup> The Network for Science and Technology for Sustainability is accessible at <http://sustainabilityscience.org/network.htm>.

<sup>5</sup> The Organizing Committee consisted of Jose Sarukhán, William Clark, Robert Corell, Gisbert Glaser, Mohamed Hassan, Calestous Juma, Robert Kates, Akin Mabogunje, and Thomas Rosswall. Further information on the Mexico City Workshop, including copies of the background papers prepared for it, and the material presented there, is available at <http://sustainabilityscience.org/ists/synthesis02.htm>.

<sup>6</sup> This proposal to focus on a selected number of technology-related issues such as water and sanitation, energy, agriculture and information technology contributed to efforts in the UN to define the structure and organization of WSSD. A similar approach was later adopted by UN Secretary-General Kofi Annan of WEHAB (Water and sanitation, Energy, Health and the environment, Agriculture, and Biodiversity and ecosystem management) "to provide focus and impetus to action in the five key thematic areas" (The WEHAB Working Group, 2002). These areas were perceived to be "integral to a coherent international approach to the implementation of sustainable development" (The WEHAB Working Group, 2002). Kofi

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Annan placed emphasis on these five themes as he spoke during his awareness-raising campaign for the WSSD and he highlighted that it was in these areas that results must be found during the Summit. He stated that these were “areas in which progress is possible with the resources and technologies at our disposal today.” In addition, Juma has assisted the Office of the UN Secretary-General to explore how best to raise the profile of global biodiversity conservation.

<sup>7</sup> See [http://sustainabilityscience.org/events/sti4sd\\_bg+agenda\\_icsu-twas-wfeo\\_020805.pdf](http://sustainabilityscience.org/events/sti4sd_bg+agenda_icsu-twas-wfeo_020805.pdf) and <http://www.ictp.trieste.it/~twas/WSSD.html>.