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# Engineers Forum on Sustainability

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An ASCE/ASEE Newsletter

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## World Summit on Sustainable Development Gains Increased Attention

The World Summit on Sustainable Development (WSSD), to be held in Johannesburg, South Africa, August 26 to September 4, 2002, is drawing global interest and participation. Occurring on the 10th anniversary of the Earth Summit, it will evaluate environmental progress worldwide during the past decade, and address many of the evolving and complex sustainability issues and challenges that have emerged over this period.

This issue of the Forum Newsletter has an international focus that reflects the growing sustainability interests and

concerns as we approach the World Summit. The guest article was developed as a science and engineering input to the preparation for the World Summit. Also, two articles are included which address the relationship of transportation and sustainability on a global scale.

Other articles of interest include Congressional briefings on high performance schools and corporate average fuel economy (CAFE), the new Center on Sustainable Infrastructure, and the environmental/energy program of The George Washington University.

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Beginning with this issue, a **Resource Center** column has been added to the Forum Newsletter which will highlight documents and websites relevant to current developments and issues in sustainability. (**See p. 3**)

All the Forum Newsletters can currently be found on the ASEE website ([www.asee.org/neic/efsd](http://www.asee.org/neic/efsd)). If further information is needed, please contact Harry Tollerton, ASEE, by e-mail at [h.tollerton@asee.org](mailto:h.tollerton@asee.org)

The next meeting of the Engineers Forum on Sustainability will be held on Friday, May 3, 2002 from 9:00 a.m. to Noon at the National Academy of Engineering, 2101 Constitution Avenue, N.W., Washington, D.C. The meeting agenda will be posted on the ASCE and ASEE websites.

Al Grant, Forum Chair

## The Role and Contributions of Science & Engineering to Sustainability

(Editor's Note: This article is the fifth in a series of guest articles to be featured in the Forum Newsletter. It is the summary of a dialogue paper prepared by the International Council for Science (ICSU) and the World Federation of Engineering Organizations (WFEO) for the Second Preparatory Committee Meeting for the World Summit on Sustainable Development scheduled in Johannesburg, South Africa, August 26 to September 4, 2002. Michael Sanio was the lead author for this paper.)

"One of the major lessons learned since the 1992 UNCED is that the transition towards sustainable development is inconceivable without science, engineering and technology. This is why promoting the goals of sustainability, addressing immediate human and social needs while preserving the earth's fragile life support systems, has emerged as an increasing priority for the international S&T Community.

Progress has been made towards meeting the challenges posed by sustainability but more needs to be done. Factors related to sustainability, such as global warming, biodiversity loss, population growth, consumption patterns and megacity expansion, pose problems, which have outstripped the capacities of the scientific and technological community and society to forge effective and comprehensive responses. At the same time, the rapid pace of economic globalization along with the explosion in information technologies, have radically altered the research environment in which scientists and engineers operate. The scientific and technological community and society is committed to devising a new set of strategies to meet the challenges that lie ahead. Building on Chapter 31 of Agenda 21, the S&T Community proposes that these strategies be based on the following principles.

**A NEW CONTRACT - Addressing social equity, poverty reduction and other societal needs must be integral to scientific, engineering and technological endeavors.**

The S&T Community has enormous potential to contribute to sustainable development. In order to effectively utilize this potential, the S&T Community must increasingly direct its research agendas towards issues that address basic human and societal needs. As stated at the UNESCO/ICSU World Conference on Science in 1999, the scientific community must be constantly aware of and take responsibility for the potential impacts that research may have on society. In turn, society has a responsibility to provide adequate funding, up-to-date research facilities, and appropriate career structures, as well opportunities to inform and participate in the decision making process. Such an effort requires a new contract between science and society in which ethical dimensions play a central and guiding role.

**REORIENT AND INVEST - Science and engineering must give higher priority to identifying solutions for pressing environmental and developmental challenges with enhanced support by society and government.**

Economists have consistently reported that investments in science and technology are among the highest yielding investments that a nation can make. Yet investments in S&T have in many ways been inadequate, especially in developing countries, where funding for research and development is often less than 0.5 percent of annual GDP. In order to address existing and future social and environmental challenges, nations must not only substantially increase their investments in science and technology but also come to view such efforts as fundamental aspects of their overall economic and social development strategies. Investment in S&T must focus increasingly on activities that cut across disciplines, the diversity of geographical regions and cultures, and examine the intricate relationship between nature and society.

**BUILD AND MAINTAIN - Scientific and technological capacity, as an elaboration of knowledge and new tools, must be built up and maintained in all countries, but especially in countries that currently lack a minimum, critical mass of S&T capacity.**

It is not possible for science and technology to effectively contribute to sustainable development if countries do not have basic scientific capacity. The sustained and enduring investments that Northern countries have made in building their educational and science and technological capacity

largely explain their economic success. Experiences in China, Brazil, India, Singapore and the Republic of Korea over the past decades indicate that a nation's willingness to systematically invest in science and technology can yield substantial dividends. However, national investment needs to be accompanied by responsible and mutually beneficial international partnerships. Experience shows that international scientific cooperation through efforts such as the creation of institutional networks, scientific exchanges and mobility, and the establishment of scientific centers of excellence among nations with weak scientific infrastructures, are excellent strategies for building scientific capacities. At the same time coordinated measures must be taken to counter the negative effects of "brain drain" upon countries that are working to develop their own scientists and scientific capabilities. Science for sustainable development must be global in its reach, yet local and regional in its implementation. The responsibility for building and maintaining this capacity lies squarely on the shoulders of national governments but requires significantly enhanced collaboration and partnerships with the global development assistance community and the S&T Community.

**INNOVATE AND SUSTAIN - Development and sharing of new and existing technologies must be encouraged and directed towards sustainable production and consumption patterns with due emphasis on local, culturally appropriate and low-cost technologies.**

Science for sustainable development will fall short of its ultimate societal goals unless it is directly linked to innovation to achieve more sustainable production and consumption patterns. This requires greater investments in cutting edge technologies that will reduce energy and natural resource requirements in both production and consumption processes. It will also require greater recognition of the value of indigenous knowledge, as well as the need to adapt existing technologies to meet local requirements. The social and behavioral sciences provide new insights and guidance to help facilitate the transition to more sustainable consumption patterns, especially in developed countries. Success will depend largely on the ability to forge new trusting relationships between the public and private sectors when devising policies and programs that link science and technology.

**ENGAGE AND INVOLVE - Responsible engagement of the scientific and technological community in the**

**decision-making process is indispensable for effective governance aimed at sustainable development.**

The S&T Community has a responsibility to inform and participate in decision-making processes in order to increase the impact of science in policy discussions and decisions. In an international arena increasingly defined by knowledge, in a global economy depending more and more on S&T for its success, and in a world challenged by an environmental and social problems that spill across political and cultural boundaries, scientists and engineers have an obligation to become more involved in sustainable development policy issues and processes. The products of scientific endeavors, such as integrated assessments, should be designed and disseminated in such a way as to contribute directly to decision-making processes. At the same time, it must be openly recognized and accepted that the accumulation of scientific knowledge is an iterative process; S&T cannot have all the answers and uncertainty and risk are often inherent in the use of scientific knowledge. Moreover, the S&T Community has a major role to play, especially through its representative academies and professional organizations in promoting the public understanding of science, science education and literacy at all levels.

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#### **RESOURCE CORNER**

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(Editors Note: The Resource Corner is a new feature of the Forum Newsletter, beginning with this issue. It will identify current documents and websites highlighting various aspects of sustainability developments and issues, and provide references and contacts.)

With the World Summit on Sustainable Development scheduled from August 26 to September 4, 2002, in Johannesburg, South Africa, on the 10<sup>th</sup> anniversary of the Earth Summit, the following websites will provide access to information and developments on this major global sustainability event:

**[www.johannesburgsummit.org](http://www.johannesburgsummit.org)** - the official UN website for WSSD (The World Summit on Sustainable Development)

**[www.sustainablealternatives.net](http://www.sustainablealternatives.net)** - SANet - an information management system to facilitate information

exchange on sustainable technologies. SANet is collecting Win-Win case studies to showcase at WSSD.

[www.un.org/esa/sustdev/agenda21text.htm](http://www.un.org/esa/sustdev/agenda21text.htm) - the text of Agenda 21

[www.wfeo-comtech.org](http://www.wfeo-comtech.org) - the official website for the World Federation of Engineering Organizations' (WFEO) Committee on Technology (ComTech). Contains WFEO resolutions on sustainability.

[www.ecouncil.ac.cr](http://www.ecouncil.ac.cr) - visit the Earth Council website for activities leading to Rio +10 (WSSD).

<http://iisd.iisd.ca/rio+5agenda/default.htm> - Agenda 21 and other Rio Agreements.

[www.earthcharter.org](http://www.earthcharter.org) - A global grassroots movement seeking world-wide adoption of the Earth Charter.

[www.ceworld.org](http://www.ceworld.org) - website for ASCE's First Virtual World Congress. See sustainability topic area.

[www.worldwatch.org](http://www.worldwatch.org) - Published "State of the World 2002," focusing on WSSD issue

## Eno Publishes Report on Global Climate Change and Transportation

The Eno Transportation Foundation has published a report entitled "Global Climate Change and Transportation: Coming to Terms." The report contains a number of policy and technical essays on the subject. They reflect a series of programs over a two-year period, addressing different aspects of global climate change and transportation. The Eno Foundation partnered with the U.S. Department of Transportation and the National Cooperative Highway Research Program in sponsoring the series.

The titles of the essays in the report include: "Global Warming: A Science Overview; Changing the Future of Light-Duty Vehicle Energy Use and Greenhouse Emissions; The History of Climate Change Policies, International Negotiations and the Kyoto Protocol; Credit for Early Action; Climate Change and the Carbon Cycle; Global

Warming: An Issue Whose Time is Past; Global Warming, Infrastructure, and Land Use in the Metropolitan New York Area: Prevention and Response; Impacts on Greenhouse Gas Emissions of Using Alternative Transportation Fuels with Advanced Vehicle Technologies; Electric and Hybrid Energy Storage R&D Programs of the US Department of Energy; Charting a Course for Transportation in the New World of Climate Change: Some First Steps Toward Integrating Energy Efficiency and Emissions Trading into US Transportation Policy; Community-Oriented Planning in the Charlottesville, Virginia Region; Designing Climate-Sensitive State Transport Policy: Lessons from the Delaware Climate Change Action Plan; Aviation and the Changing Climate; and Marine Transportation and Global Climate Change."

In summarizing the results of the discussion series, Damian J. Kulash, President and CEO of the Eno Transportation Foundation, suggested the following constructive steps for transportation professionals:

**Accelerate development of technology.** If we are to avoid costly and painful adjustments, new technologies must be found that allow us to continue to consume transportation and other goods and services in ways that do not contribute to greenhouse gases. Investment in research and development that might yield breakthroughs here is cheap compared to the possible costs entailed in reducing emissions with current technology.

**Experiment with land use, transportation, and pricing to reduce travel demand.** Many communities are already adopting land use strategies and other policies to reduce their dependence on highway travel because this makes them more attractive places to live. The effectiveness of such measures, and public support for them, can be expected to mount as global climate change becomes a greater consideration in planning and development. Experimentation now with pricing and land use measures can develop valuable experience to guide future decisions. Communities that take steps now to anticipate future social and economic conditions will come out ahead as changes occur.

**Start Adaptive measures now.** The design of transportation infrastructure reflects many climate-related factors - sea levels, average temperatures, and vulnerability to storms. Transportation professionals today are designing these facilities for an era in which climate will be different

than today's. These differences should be recognized in current design practices.

**Encourage actions that are win-wins.** Certain strategies to reduce greenhouse gas emissions are accompanied by parallel advantages in efficiency, safety, or developmental consequences. Support for such measures can turn the balance and accelerate the adoption of steps that may not appear economical now but that will appear so in the future when the value of emissions reductions is more fully recognized.

**Do contingency planning assuming greenhouse gas emissions are costly.** One way or another, there is a high probability that higher economic penalties for greenhouse gas emissions will be imposed in future years. Making choices now to anticipate the likelihood of such a future is good business, especially if provision is made for credits to be applied against future requirements.

**Stay tuned.** The struggle to create an international framework for addressing global climate change will probably go through many stages, each possibly affecting transportation interests and national concerns in different ways. Public agencies and private companies will face an ever changing series of challenges relative to each other, vis-a-vis other sectors, and in international matters. Transportation interests have a strong stake in climate-change policy. They need to speak up as options are considered, learn how various control-system proposals would operate, and to be ready to participate fully when actions are taken."

**Contact:** For further information, contact the Eno Transportation Foundation, 1634 I St., N.W., Washington, DC 20006 (tel: 202-879-4700; fax: 202-879-4719)

## WBCSD Report on Mobility & Sustainability Available

The World Business Council on Sustainable Development (WBCSD) has published a report entitled, "*Mobility Report 2001: World Mobility at the End of the Twentieth Century and its Sustainability.*" The WBCSD is a coalition of 150 international companies united by a shared commitment to sustainable development via the three

pillars of economic growth, environmental protection and social equity. Its members are drawn from more than 30 countries and 20 major industrial sectors. The Council also has a Global Network of 30 national and regional business councils and partner organizations involving some 700 business leaders globally. The mission of the WBCSD is to provide business leadership as a catalyst for change toward sustainable development, and to promote the role of eco-efficiency, innovation and corporate social responsibility.

The WBCSD defines "sustainable mobility" as "the ability to move freely, gain access, communicate, trade, and establish relationships without sacrificing other essential human values today or in the future." In short, for mobility to be sustainable, it must improve accessibility while avoiding disruptions in societal, environmental, and economic well-being that more than offset the benefits of the accessibility movements. This means that any assessment of mobility's sustainability must include not only a judgment as to its effectiveness in improving accessibility, but also a judgment as to the magnitude and consequence of any associated disruptions in social, environmental, or economic well-being.

The report includes sections on: (1) Problems of Mobility Demand, Technology, and Energy Use (trends in population and urbanization, patterns of travel behavior and demand, transportation technology, and energy for transportation); (2) Personal Mobility in the Urbanized Developed World (trends in urban mobility, sustainability concerns, and mitigating strategies); (3) Personal Mobility in the Urbanized Developing World (urban mobility and motorization, and challenges to sustaining mobility); (4) Trends in Intercity Travel (the volume of intercity travel and the demand for intercity travel); (5) Freight Mobility (sustainability concerns); and (6) Worldwide Mobility and the Challenge to its Sustainability (in the developed world and the developing world).

**Contact:** The Mobility 2001 report is available on the WBCSD's Mobility website: <http://wbcsdmobility.org>.

The Council's publications are also available on the WBCSD website: <http://www.wbcd.org>

## CERF and IIEC Create Center for Sustainable Infrastructure

The 1999 merger of the Civil Engineering Research Foundation (CERF) and the International Institute for Energy Conservation (IIEC) created a global non-profit organization promoting market-based technology innovation. Now CERF/IIEC has created the Center for Sustainable Infrastructure. CERF/IIEC is an affiliate on the American Society of Civil Engineers. CERF/IIEC has regional offices in Washington, DC, London, Johannesburg and Bangkok; and project offices in Beijing, New Delhi, Mumbai, and Rio de Janeiro.

The Center for Sustainable Infrastructure melds and builds on the combined strengths of CERF and IIEC by providing a whole-systems perspective, an integrated multi-disciplinary approach, and market-based solutions for efficiency in energy, water, materials and transport. It offers a global presence and a local staff, and it combines infrastructure supply and demand sides.

The Center's whole systems perspective includes physical components, operational factors, human factors, and the market dynamics of usage, technology, financing, and policies. The Center's integrated approach leads to solutions that are environmentally sound, least cost, sustainable for communities and that meet stakeholder needs.

In the energy area, project examples with market-based solutions include market transformations to efficient motors and transformer technologies (India and China), eco-homes for energy-efficient, affordable housing (South Africa), and information clearinghouses and technical assistance in eight developing countries. In the water area, project examples include decentralized energy-efficient wastewater treatment technologies (USA) and stormwater management and erosion control for transportation systems (USA).

In the materials area, project examples include earth brick technology transfer for low-income house construction (South Africa) and blended cements to reduce energy consumption (USA). In the transport area, project

examples include transportation technologies to reduce GHC emissions (India), community transportation strategies for GHC reduction (Pennsylvania) and conversion of refineries to unleaded fuel production (South Africa).

The Center for Sustainable Infrastructure will be the focal point for: developing new concepts, tools and methods; conducting technology verification and demonstrations; supporting market transformation toward energy-efficient sustainable technologies; establishing new institutional frameworks; and harmonizing standards and regulations.

More information on CERF/IIEC and the Center for Sustainable Infrastructure can found at [www.cerf.org](http://www.cerf.org), or by contacting Denise Knight (tel: 202-785-6434; e-mail: [dknight@cerf.org](mailto:dknight@cerf.org)).

## High Performance School Buildings Promoted

In December, 2001, the Environmental and Energy Study Institute (EESI) and the Sustainable Buildings Industry Council sponsored a Congressional briefing on "high performance school buildings" - energy-smart schools that utilize a "whole building" design which incorporates the use of daylighting, other renewable energy resources, energy-efficient technologies and other sustainable features. These technologies can be incorporated in new construction, rehabilitation and retrofits.

Basic information provided at the briefing included the following:

- It is estimated that 6,000 new schools will be built by 2007.
- Schools in the United States currently spend more than \$6 billion per year on energy, which exceeds the cost of computers and books combined, and is second only to salary expenses.
- According to a 1995 General Accounting Office report, 73 percent of schools were built before 1960 (the average age of buildings being 42 years); nearly 28,000 schools have inadequate heating, ventilation and air-conditioning systems; and 21,000 have faulty roofs.
- In a typical school, one-third of the energy consumed is wasted. This is largely due to old and poorly functioning equipment; poor insulation; and

outdated technology, such as lighting systems. The least energy-efficient schools use almost four times as much energy per square foot as the most energy-efficient ones.

- Cost-effective energy performance improvements can reduce energy bills by 25 to 30 percent on average, which would save \$1.5 billion per year - enough to hire 30,000 new teachers or buy 40 million books annually.

Legislation related to high-performance school buildings is pending before Congress; such provisions have been included in comprehensive energy policy proposals introduced in the Senate; in the SAFE Act (H.R. 4) which passed the House and in the Senate-passed Elementary and Secondary Education Act (ESEA) Authorization bill.

To make a real difference in the quality and affordability of public education today, designing high-performance schools through new construction and rehabilitation is essential. Energy-smart schools result in better student performance, promote teacher retention, improve occupant health, consume less energy, significantly reduce operating costs, and improve the environment.

The "high-performance school building" approach has already been demonstrated around the country with impressive results.

**Contact:** For more information, contact Beth Bleil (EESI): (tel: 202-662-1885; e-mail: [bbleil@eesi.org](mailto:bbleil@eesi.org))

## Congressional Briefing Held on Corporate Average Fuel Economy (CAFE)

In late January, 2002, the Environmental and Energy Study Institute (EESI) sponsored a Congressional briefing examining the issue of increased automotive fuel economy through higher Corporate Average Fuel Economy (CAFE) standards. The issue has gained increased attention as a result of the Congressional energy debate and heightened concerns about national energy security. The briefing also looked at the results of the recently released National Academy of Sciences (NAS) study entitled: *Effectiveness*

*and Impact of Corporate Average Fuel Economy (CAFE) Standards*, which was done at the request of Congress.

According to the Energy Information Administration (EIA) of the US Department of Energy, the United States consumes more than 18 million barrels of oil per day, an amount greater than the yearly consumption for either all of Europe or all the states of the former Soviet Union. Of this consumption, domestic production accounts for approximately 7.8 million barrels of oil a day; the remaining 10.7 million barrels are imported. Oil imports currently constitute about 56 percent of total US oil consumption. EIA projects that US reliance on imported oil will increase to two-thirds of consumption early this century. The increase will come regardless of domestic production, because the United States, which consumes 25 percent of the world's oil production has less than three percent of total proven world oil reserves. This amount includes both technologically recoverable and unrecoverable oil. Therefore, to help protect national energy security, lower U.S. oil demand has become an important issue. Because US cars and SUVs/light trucks account for more than 40 percent of total daily consumption, improvements in automotive fuel economy are viewed by many as an effective way to reduce the nation's costly reliance on imported oil (EIA cites that Americans spent \$119 billion on oil imports in 2000).

Automotive fuel economy doubled from 1973 to 1985, largely in response to the CAFE standards enacted by Congress in 1975. According to the Environmental Protection Agency's (EPA) Light-Duty Automotive Technology and Fuel Economy Trends (1975-2001) report, the average fuel economy of new cars has been essentially flat over the last 16 years with the 27.5 mpg CAFE standard, which was set in 1975 and remains unchanged. The fuel economy standard for SUVs/light trucks is 20.7 mpg. The recent boom in sales of SUVs/light trucks, which now constitute over 50 percent of the new vehicle market, has led to an overall decline in fleet-wide economy. At the same time, US dependence on oil imports has grown substantially. EPA's report highlights that, during the 1980s and 1990s, there were significant gains in fuel efficiency for new vehicles, but these gains were often applied to performance enhancements like faster acceleration, more engine torque, and more overall power, rather than to improved fuel economy. Beyond national energy security, other issues often cited in the debate over vehicle fuel economy include environmental, public health, and economic impacts.

**Contact:** For more information, contact Christopher Berendt, ESSI (tel: 202-662-1886; e-mail: cberendt@eesi.org)

## GWs Environmental/ Energy Management Program focuses on Sustainability

At the January 11th meeting of the Forum, Jonathan Deason, Ph.D, P.E., Lead Professor for the Environmental and Energy Management Program at the George Washington (GW) University, explained his program. GWs Environmental and Energy Management Program prepares students for positions in organizations concerned with environmental, energy, and related resource management, including programs in environmental control and energy conservation, energy resource development and use, and prevention and control of environmental pollution.

The program offers degrees at the Master's (M.S. and M.E.M. ), Professional and Doctoral levels. It provides advanced education across the full spectrum of subjects central to long-term sustainability of our society. These include protection of air quality, water quality management, hazardous and solid waste management, environmental auditing, environmental impact assessment, benefit-cost analysis, geographic information systems, and other related subjects. The program embodies not only the engineering and scientific technologies underlying the profession, but also the statutory and regulatory framework in which they are embedded, social and policy considerations that are critically important in modern society.

Dr. Deason also described an active program of funded research focused on a variety of sustainability topics. Recent research sponsors have included the US Environmental Protection Agency, US Army Corps of Engineers, Federal Highway Administration, and Transportation Development Foundation.

The Environmental and Energy Management Program resides in the School of Engineering and Applied Science at GW, which has been in continuous operation since 1884. The University itself, founded in 1821, is a private, nonsectarian, coeducational institution of higher learning

containing a full-time and part-time faculty of more than 2,100 and a student body of more than 19,000.

**Contact:** For more information, contact Dr. Deason (tel: 202-994-4827; fax: 202-994-4606; e-mail: jdeason@seas.gwu.edu)

## WFEO & FIDIC Partner in Sustainable Alternatives Network

The World Federation of Engineering Organizations (WFEO) and the International Federation of Engineering Consultants (FIDIC) leaders met in Washington at the end of January to discuss a Motion of Understanding to guide their participation in the Sustainable Alternatives Network (SANet) and to look toward development of partnership opportunities. In other business, the group discussed representation at the World Summit on Sustainable Development (Johannesburg, August 24-September 4, 2002) and follow-up activities from the Global Environmental Facility's (GEF) International Waters Workshop (June 7-8, 2001).

Focus areas of WFEO's Committee on Technology (ComTech) are: Water, Energy, Underground Space, Virtual Library, Building Codes & Natural Disaster Mitigation, and Megacities & Developing Country Assessments. Each of its six Regional Vice Presidents and their task group is charged with advising ComTech on opportunities and issues appropriate for comment. ComTech's recent work with the United Nations can be summarized by: Publication of UNCSO report, "*Engineered Energy Technologies*," in hard copy and through website; Mike Sanio's work to produce the "*Role and Contributions of the Scientific and Technological Community (S&TC) to Sustainable Development*" for the WSSD PrepCom II (New York, January 28-February 8, 2002) and his participation in PrepCom II as member of WFEO/ICSU delegation; and the ongoing work to produce WFEO's Rio + 10 report, timed for publication in mid-July.

ComTech is working with WFEO to identify a host organization for its Secretariat after 2003. A partnering arrangement between the US and another country may be possible. To ensure continuity, ComTech leaders anticipate a transitioning period of a few months.

**Contact:** The most recent issue of WFEO ComTech News is available from the ComTech website ([www.wfeo-comtech.org](http://www.wfeo-comtech.org))

## Organization of American States Addresses Sustainability

The Unit for Sustainable Development and Environment (USDE) is the principal technical arm of the OAS General Secretariat for responding to the needs of member states on matters of sustainability and environmental preservation within an economic development context. Technical issues addressed by the USDE include transboundary management of water resources, reduction of vulnerability to natural hazards, public participation in decision-making, climate change/sea level rise, coastal zone management, renewable energy planning, and biodiversity.

The principal objectives of the USDE are to: (a) **provide** support, in areas of its technical expertise, to the political organs of the OAS, and represent the General Secretariat in technical dialogues in the hemisphere and in intergovernmental, environmental fora convened primarily under the auspices of the United Nations; (b) **formulate and execute** technical cooperation projects within its field of expertise, including follow-up of the mandates of the Summit of the Americas on Sustainable Development; (c) **facilitate** exchanges of information related to sustainable development in the region and build a basis for the participation of civil society in environmental management decision processes; (d) **assist** countries and regions in preparing investment projects for consideration by regional and international financing mechanisms; and (e) **support** efforts to promote coordination and cooperation among bilateral and international agencies and non-governmental organizations in pursuit of the goals established by the member states of the OAS.

Current areas of action include:

**Water Resources.** In conformity with the mandates of OAS member states, the USDE is engaged in several projects on transboundary water resource management in partnership with the UN Environment Program (UNEP), the World Bank, and the Global Environment Facility (GEF) in major river basins of South and Central America. The Unit is the secretariat for the Inter-American Water Resources

Network (IWRN) and serves on the Board of Governors of the World Water Council. USDE is also collaborating with the Pan American Health Organization to organize an inter-American conference on the link between water and health.

Visit: [iwrn.ces.fau.edu](http://iwrn.ces.fau.edu)

**Climate Change/Coastal Zone Management.** The USDE is the executing agency of the four-year (1997-2001) Caribbean: Planning for Adaptation to Global Climate Change (CPACC) project, being carried out with a grant from the GEF, through the World Bank. CPACC has established a Regional Project Implementation Unit (RPIU) in Barbados in collaboration with the University of the West Indies Center for Environment and Development. The purpose of the project is to support twelve Caribbean Community (CARICOM) countries and regional institutions in an effort to cope with the adverse effects of climate change, particularly sea-level rise, in coastal and marine areas through vulnerability assessment, adaptation planning, and capacity building. Its activities include the establishment of a regional network of sea-level and climate-monitoring stations; inventories and management of coastal resources and uses; coral-reef monitoring; coastal vulnerability and risk assessment; economic valuation and regulation of coastal resources; and inventories of greenhouse gases. Visit: [www.cpacc.org](http://www.cpacc.org)

**Natural Hazards.** Since 1983 the USDE has been providing technical support to reduce vulnerability to natural hazards and thus avoid disasters or mitigate their effects. Its activities - assistance with policy formulation, hazard and vulnerability assessments, training in disaster mitigation techniques, and formulation of mitigation measures for development investment projects - are generally carried out as part of ongoing technical cooperation programs with collaborating national, regional, and international institutions.

The USDE has also undertaken a series of sector-specific vulnerability reduction studies at a national level for agriculture, education, energy, transportation, trade corridors, tourism, and urban lifelines, with collaboration from the World Bank, IDB, Caribbean Development Bank, the UNDP and other UN specialized agencies, and bilateral donors, such as USAID's support for the Caribbean Disaster Mitigation Project (CDMP). Visit Web sites [www.oas.org/nhp](http://www.oas.org/nhp) and [www.oas.org/en/cdmp](http://www.oas.org/en/cdmp)

**Renewable Energy.** The USDE considers efficient, renewable and environmentally friendly energy generation and use a key component of sustainable development. The

Unit serves as the Technical Secretariat for the Renewable Energy in the Americas (REIA) Initiative. It is also active in providing technical assistance for sustainable energy project development and facilitating appropriate financing for projects. The REIA offers government officials access to information on renewable energy and energy efficiency technologies, and serves as a point of contact for the private sector into the energy sector in the Americas. REIA carries out institutional and technical capacity building programs, and sponsors periodic conferences and workshops on sustainable energy technologies, including the REIA2000: Hemispheric Conference and Exposition.

**Contact:** For additional information and electronic full-text versions of the Unit's publications, visit:  
**[www.oas.org/usde](http://www.oas.org/usde)**