
ENGINEERS FORUM ON SUSTAINABILITY

FORUM CELEBRATES A DECADE OF SUSTAINABILITY

The first issue of the Forum Newsletter was published in October, 1997. The opening article was entitled "WELCOME TO THE FORUM." It announced "The American Association of Engineering Societies (AAES) and the American Society for Engineering Education (ASEE) have joined together to co-sponsor The Engineers Forum for Sustainable Development." It added that "The mission of the Forum is to help promote the principles and practice of sustainable development by: (1) providing a meeting place for interdisciplinary discussion and exchange of information; (2) identifying and distributing information on engineering education programs that incorporate sustainable development; (3) encouraging practicing engineers to apply sustainable development principles and participate in sustainable development programs and activities at local, regional and national levels, and (4) keeping abreast of and sharing information on international developments that can contribute to global sustainability.

Ten years later, the Forum has five co-sponsors (ASCE, ASEE, AIChE, ASME and IEEE) and maintains a cooperative working relationship with AAES.

We are proud of our growth and accomplishments in carrying out the mission of the Forum during this period. We also thank the National Academy of Engineering for hosting our Forum meetings.

Today, sustainability is on everyone's lips as a critical need globally, nationally and locally. Ten years ago, sustainable development was already being recognized by a number of organizations as a matter of interest and importance. To provide a historical perspective, we have included in this issue, the table of contents of the October, 1997 Forum Newsletter, which identifies many of the organizations involved at that time.

This issue of the Newsletter continues our practice of bringing you current sustainability-related articles in the categories of Government, Academia, Professional Organizations, International, and Other Organizations and Developments. They reflect many of the diverse dimensions of sustainability, and we hope you will find them of interest.

We plan to celebrate our decade of sustainability at the next Forum meeting, and we invite you to join us for this special occasion. The meeting is scheduled for Friday, January 25, 2008, in the Lecture Room of the National Academy of Engineering in Washington, D.C. The Forum will meet from 9:00 a.m. to noon, and the AAES International Activities Committee will meet in the same room from 1:00 p.m. to 4:00 p.m. PLEASE MARK YOUR CALENDARS NOW FOR THIS SPECIAL EVENT! We look forward to seeing you on January 25.

Al Grant, Forum Chair

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UPCOMING SUSTAINABILITY EVENTS

GOVERNMENT

Environmental Standards Adopted for Anacostia River

At the September 21, 2007 meeting of the Forum, Brendan Shane, Office of Policy and Sustainability, D.C. Department of the Environment, reviewed the environmental standards adopted by the District of Columbia and the Anacostia Waterfront Corporation (AWC). As the lead agent for the District of Columbia overseeing redevelopment around the Anacostia River, AWC was charged not only with the economic revitalization of neighborhoods, but also with the cleanup, restoration and stewardship of the River itself.

The environmental standards are designed to deliver:

Cleaner Water - Green roofs, rain gardens, restored wetlands and innovative green infrastructure capture and clean rainwater runoff, reducing the amount of trash, chemical pollution, sediment, and sewage flowing into the Anacostia.

Cleaner Air - Trees and other vegetation improve air quality by filtering many airborne pollutants, and green building techniques improve indoor air quality in homes and offices - all of which help to reduce the amount of respiratory illness.

Cooler Summertime Temperatures - Trees, green roofs, and green building techniques create shade, reduce heat absorption, and release water vapor - all of which cool the air.

Increased Energy Efficiency - Green building techniques greatly reduce energy consumption, saving owners and renters money and improving air quality by reducing pollution caused by power generation.

Livable Neighborhoods - Sustainable development techniques make communities more livable and healthy by reducing pollution and providing green public spaces, new recreational opportunities, and critical wildlife habitat along the waterfront.

Economic Revitalization - Cleaner, healthier communities and the River bring new residents, businesses, and tourists to the area.

Climate Change Mitigation - Green buildings that incorporate energy efficient systems and green roofs reduce demands for energy which, in turn, reduces emissions of greenhouse gases produced by the burning of coal and other fossil fuels. Walkable neighborhoods accessible by mass transportation further reduce carbon dioxide emissions. While climate change impacts are global, buildings and infrastructure along the Anacostia waterfront face unique threats from sea level rise due to their low elevation.

For further information, visit the AWC website: www.anacostiawaterfront.net

ACADEMIA

Higher Education Sustainability Act Introduced

The Higher Education Sustainability Act of 2007 (HESA - HR3637) was introduced in September, 2007 in the U.S. House of Representatives by Congressman Earl Blumenhauer (D-OR), Vernon Ehlers (R-MI), Rick Bouche (D-PA), and David Wu (D-OR). HESA amends the Higher Education Act to authorize a new \$50 million grant at the Department of Education that will annually support between 25 and 200 projects at higher education institutions and consortia/associations.

Higher education associations and consortia are eligible for funding to conduct faculty and administrator trainings; disseminate best practices, case studies, and educational guidelines; engage external stakeholders such as business, alumni, and accrediting agencies; and create analytical tools to assess institutional progress.

Individual institutions are eligible for funding to implement administrative and operations sustainability practices; establish multidisciplinary sustainability education, research, and outreach programs; conduct

energy management, green building, waste and toxics management, green purchasing, transportation, and related initiatives; establish sustainability literacy as a requirement for degree programs; and integrate sustainability in all programs of instruction.

For more information, visit www.fundee.org/campaigns/hesa/

PROFESSIONAL ORGANIZATIONS

Sustainability at ASEE - A Snapshot

(Editor's Note: This article is the first in a series of brief reports on sustainability developments and activities by the Forum co-sponsors and other organizations in which sustainability is a program element. This article was written by William E. Kelly, Manager of Public Affairs, ASEE).

The American Society for Engineering Education (ASEE) was an early co-sponsor of the Engineers Forum on Sustainability, and continues to participate actively in its meetings and programs. Its Board of Direction approved a statement on sustainable development in 1999. (www.asee.org/about/Sustainable_Development)

One way to measure sustainability activity at ASEE is to look at papers presented at the Annual Conference. A search of the papers for 2007 on the ASEE conference web site using the key word "sustainability" turned up over 200 papers! In comparison, a search of the 1999 annual conference papers turned up only five papers. The conference paper site is open to non-members and can be searched for papers published since 1996. (www.asee.org/conferences/v2search)

ASEE has 44 divisions that organize sessions at the national meetings. One of these divisions is the Environmental Engineering Division. The Division held a session on "Sustainable Engineering" at the 2007 meeting. In the Division newsletter, Chair Mike Butkus from West Point noted that according to the U.S. Department of Labor, environmental engineering is one of the fastest growing professions. He added that climate change and sustainability are now issues that are at the forefront of environmental issues being discussed nationally and internationally among policy makers and politicians as well as engineers and scientists.

ASEE's PRISM magazine goes to more than 12,000 individuals, including: 10,000 engineering faculty, over 400 engineering deans, and 400 corporate executives. It is also sent to students, members of congress, other government advisors, and science and engineering writers and publishers. Although the current issue is only available to members, back issues are available to anyone on the ASEE web site. A quick search of the PRISM site reveals a number of articles that have dealt with sustainability. Plans are to run a cover story on what engineering schools are doing to foster sustainable practices at their schools.

The Engineering Deans Council's (EDC) Public Policy Committee (PPC) has an annual colloquium to discuss policy issues of importance to engineering schools. Recently, the EDC made the decision to prepare policy briefs to provide background and context for important issues affecting engineering. The first brief dealt with industry-university partnerships. A brief on energy is under preparation and a brief on sustainability is in the planning stages.

Sustainability is very visible internationally and ASEE is working with Arizona State University on an upcoming NSF-sponsored workshop on Sustainable Infrastructure in Developing Countries to be held in Washington, D.C. ASEE is the secretariat for the new International Federation of Engineering Education Societies (IFEES) where sustainability is getting increased attention. Engineers for a Sustainable World (ESW) is a member of IFEES and their upcoming meeting is the lead item on the IFEES web site. (www.ifees.net/)

Finally, sustainability will likely be the focus of one of the tracks for the 7th ASEE Global Colloquium on Engineering Education in Cape Town in 2008. Part of the Global Colloquium is the Global Student Forum and students are currently discussing the theme for the meeting and are seriously thinking about "greening" issues and sustainability in general.

For more information about ASEE, visit www.asee.org.

AICHE and ASME Offer Virtual Meetings on Sustainability

AICHE Institute for Sustainability (IfS) and ASME invite participation in their upcoming webcasts on sustainability. Hosted by the Sustainable Engineering Forum, part of the AICHE IfS family of sustainability activities, the virtual meetings last for approximately 1 ½ hours and explore a number of sustainability topics. The upcoming list for the current series includes:

December 20 10 am ET: Sustainability Aspects of Brownfields and Greenfields

January 22 1 pm ET: Reducing non Power Plant Mercury Emissions

February 19 2 pm ET: Impacts of Freshwater Pollutants on the Chesapeake Bay

March : Livestocks' Long Shadow

Please email ifs@aiiche.org to pre-register and check the SEF website for updates and abstracts.

http://webpages.eng.wayne.edu/~as8971/AICHE_SEF/.

ACS and /AICHE present "Workshop on Policy Barriers to Sustainability in the Chemical Industry"

The "Workshop on Policy Barriers to Sustainability in the Chemical Industry" is jointly sponsored by the American Chemical Society Committee on Environmental Improvement (CEI) and the American Institute of Chemical Engineers Institute for Sustainability and its Center for Sustainable Technology Practices (AICHE IfS and CSTP) and ACS Committee on Corporation Associates (CA) that will be held at the ACS and AICHE national meetings in New Orleans on April 9-10, 2008.

The purpose of the workshop is to identify policies to overcome non-technical barriers and create incentives to encourage sustainable practices and processes in the chemical and related industries. The workshop will:

- * engage a cross-section of chemical and related industrial firms to explore what economic, social, regulatory, and other non-technical issues impede the adoption and implementation of more sustainable practices.
- * sort, evaluate, and analyze the input received from participants to create a more comprehensive understanding of overarching non-technical challenges; and
- * report to the ACS/AICHE and other organizations to enable other actions to be proposed to address the issues and impediments identified.

For additional information contact Martin Abraham at maabraham01@ysu.edu or contact ifs@aiiche.org.

INTERNATIONAL

CAETS Statement on Environment and Urban Growth

At the 17th Convention of the International Council of Academies of Engineering and Technological Sciences, Inc. (CAETS) held in Tokyo in October, 2007, a wide range of global energy and environmental issues were reviewed and discussed by more than 250 CAETS academy representatives and specialists. The state-of-the-art of various technologies for improving energy efficiency, energy production with reduced carbon dioxide (CO₂) emissions, carbon-free electricity generation; including nuclear power, and carbon dioxide capture and storage (CCS) was reviewed and discussed. The Convocation also considered water resources and pollution, control of noise pollution, recycling of materials and electronic devices, global environment monitoring systems and various strategies and measures for realizing sustainable growth. It recognized the need for urgent international and national development and implementation of counter measures for foreseeable local and global energy and environmental challenges.

In light of the Convocation deliberations and in order to realize sustainable growth and enhance the quality of life while reducing the use of fossil fuels for energy and curtailing greenhouse emissions, CAETS recommends that the following measures be urgently addressed through well planned implementation programs and research and development, including partnerships between governments and international organizations experienced with the relevant environmental issues.

1. Energy saving technologies must be greatly improved and disseminated as quickly as possible among developed and emerging countries. Key initiatives considered most promising in the short term (in the next two decades or so) include the improvement of the efficiency of electric power generation and transmission and energy storage by batteries, effective use of heat pumps, advancement of the efficiency of internal

combustion, electric and hybrid vehicles, improved energy-efficiency in commercial buildings and residences, and utilization of Light Emitting Diode (LED) technology for illumination.

2. The opportunities provided by information, communication and control technologies for reducing energy consumption, for example, by reducing the need for travel and through development of optimized logistics and smart power systems, should be exploited aggressively, along with efforts to reduce energy consumption in IT devices and systems themselves.
3. Development of renewable and alternative energy sources must be promoted and their application should be encouraged. Breakthroughs in the technologies for hydro-electric, nuclear, solar, wind, biomass and geothermal energies, high voltage DC power transmission, in combination with high frequency power conversion, should be explored for near to medium term exploitation, and their appropriate use should be considered in light of the situation in each region. Development of innovative technologies for remote exploration and enhanced extraction of oil, gas and mineral resources from the oceans must be encouraged.
4. Studies must proceed to determine under what circumstances technologies for the capture and storage of carbon dioxide are feasible and cost effective. Other proposals to reduce emissions should be also encouraged and their effectiveness evaluated. Since, for some time to come, the use of fossil fuels will inevitably play a key role in economic growth to meet the needs of expanding populations for an acceptable quality of life, immediate attention to development of more effective (cleaner) and efficient use of coal and oil is essential.
5. The increased use of nuclear power generation as an energy source must be addressed as a key issue for sustainable growth. CAETS recommends the promotion of studies on new generation reactors in the short and medium term and fusion research for the long term. Research to enhance safety measures, waste handling, economical performance and obstacles to non-proliferation are necessary for conventional reactors and associated fuel cycle facilities.
6. Other promising technologies warranting priority for medium to long-term development, including hydrogen production, transport and storage and application of fuel cell for vehicles, should be explored. The discovery and environmentally sound management of gas hydrates should also be promoted.
7. Together with the advancement of new technologies referenced above and the more effective and efficient use of traditional energy sources, the modification of social infrastructures, consistent with the conditions of each economy, must also be seriously considered. For example, development of well organized public transportation systems, should be investigated and implemented as appropriate to offer an alternative to the expansion of automotive fleets.
8. Nations should work together to ensure development and sustained operation of the Global Climate Observing System (GCOS) and the Global Earth Observation System of Systems (GEOSS) to provide the data and information needed to support global, national and regional strategies for sustainable development, including, for example, evaluating the total emissions of greenhouse gases and enabling more reliable projections of climate change.
9. Governments of all countries should work towards a new post-Kyoto climate change framework, codifying the urgent and concerted actions needed to suppress the emission of greenhouse gases.

For more information about CAETS, visit www.caets.org/naecaets.nsf/

WBCSD Report Surveys "Green" Construction Costs

A new study by the World Business Council for Sustainable Development (WBCSD) finds green costs overestimated by 300% and a need to foster zero net energy construction. The Report says that key players in real estate and construction misjudge the costs and benefits of "green" buildings, creating a major barrier to more energy efficiency in the building sector.

Respondents to a 1400 person global survey estimated the additional cost of building green at 17 percent above conventional construction, more than triple the true cost difference of about 5 percent. At the same time, survey respondents put greenhouse gas emissions by buildings at 19 percent of world total, while the actual number is 40 percent.

The findings are disclosed in a new report titled "Energy Efficiency in Buildings: Business Realities and Opportunities", which summarizes the first phase of the WBCSD's project. The project is co-chaired by Lafarge and United Technologies Corporation. Other participating companies are CEMEX, DuPont, Electricite de France, Gaz de France, Kansai, Philips, Sonae Sierra, and Tepco.

The study also found that fewer than one in seven industry respondents has participated directly in a green building project. Involvement ranges from a high of 45 percent in Germany to just 5 percent in India. About 20 percent of architects, engineers and developers have been involved in green building projects, compared to just 9 percent of owners and tenants.

Buildings already represent approximately 40 percent of primary energy use globally and energy consumption is expected to rise substantially in the world's most populous and fast growing countries such as China and India.

The study highlights opportunities to promote green building know how and technologies as the WBCSD pushes for zero net energy construction. Zero net energy buildings will reduce demand by design, be highly efficient and generate at least as much energy as they consume.

The WBCSD's Energy Efficiency in Buildings Project is a three-year initiative to assess the environmental impacts of buildings and develop means to achieve zero net energy use in residential and commercial buildings. Headquartered in Geneva, Switzerland, the WBCSD is a global association of about 200 companies that serves as a business advocate for sustainable development through economic growth, ecological balance, and social progress; its members are drawn from more than 35 countries and 20 major industrial sectors worldwide.

For more information, visit www.wbcسد.org

OTHER ORGANIZATIONS AND DEVELOPMENTS

Amadei Receives Heinz and Hoover Medal Awards

Dr. Bernard Amadei, Professor of Civil Engineering at the University of Colorado at Boulder, has received the Heinz Award for the Environment, and the Hoover Medal, for founding Engineers Without Borders - USA.

The Heinz Awards are bestowed on extraordinary Americans whose pioneering achievements helped expand human understanding, spur innovation, and enhance the world's capacity to sustain itself.

The Hoover Medal, founded in 1929, was established to honor engineers whose preeminent services have advanced the well-being of humanity and whose talents have been devoted to the development of a richer and more enduring civilization. The engineering societies award the Hoover Medal in recognition and appreciation of civic and humanitarian achievements.

Professor Amadei is the Founding President of Engineers Without Borders - USA and the co-founder of the Engineers Without Borders - International Network. The mission of EWB - USA is to partner with disadvantaged communities to improve the quality of life through implementation of sustainable engineering projects, while involving and training internationally responsible engineering professionals and students.

At the University of Colorado at Boulder, he is leading a new paradigm shift in engineering education and practice called Earth Systems Engineering (ESE). It emphasizes the interaction between the built environment and natural systems. As part of the ESE initiative, Professor Amadei directs a new program in Engineering for Developing Communities (EDE). Its overall mission is to educate globally responsible engineering students and professionals who can offer sustainable and appropriate solutions to the endemic problems faced by developing communities worldwide.

The EWB-USA and EDC models of education go well beyond traditional service-learning concepts and models in engineering. By involving students in all steps of the projects from concept to implementation, and through experiential learning, students become more aware of the social, economic, environmental, political, ethical, and cultural impacts of engineering projects.

SONO Filter Wins NAE Grainger Award

Abul Hassan, an associate professor in the department of chemistry and biochemistry at George Mason University in Fairfax, Virginia, received the Grainger Challenge Gold Award for his SONO filter, a household water treatment system. He described the system at the September 17 meeting of the Forum.

The SONO filter is a point-of-use method of removing arsenic from drinking water. A top bucket is filled with locally available coarse river sand and a composted iron matrix (CIM). The sand filters coarse particles and imparts mechanical stability as the CIM removes inorganic arsenic. The water then flows into a second bucket where it flows through coarse river sand, then wood charcoal to remove organics, and finally, fine river sand and wet brick chips to remove fine particles and stabilize water flow.

Arsenic poisoning in drinking water is now identified as one of the worst natural disasters on the earth. It is estimated that of the 140 million people of Bangladesh, between 77-95 million are drinking groundwater containing more than 50 ug/l (or 0.05 mg/l) maximum contamination level (MCL) from 10 million tubewells.

The SONO filter is now distributed to thousands of people in Bangladesh. The filter is manufactured from indigenous materials and it removes arsenic species on the CIM. The filter water meets World Health Organization and Bangladesh standards, has no breakthrough, works without chemical treatment (pre or post), without regeneration, and without producing toxic wastes, and lasts at least five years. It costs about \$35 and produces 20-30 L/hour clean drinking water for daily drinking and cooking needs of 1-2 families. The spent material is completely non-toxic - solid self contained material that does not leach in rainwater. Approved by the Bangladesh Government, 30,000 SONO filters were deployed all over Bangladesh and continue to provide more than a billion liters of safe drinking water. Patients drinking this water for two years show arsenical melanosis disappearing, with significant improvements in health.

For more information, visit www.nae.edu/nae/granger/nsf/weblinks.

World Bank Group: Walking the Talk

"At the Forum meeting on September 21, 2007, Bob Sensenig of the World Bank and Chris Hodges of Facility Engineering Associates described the sustainability assessment program for the World Bank Headquarters buildings in Washington, D.C.

The World Bank is an International Bank for development and reconstruction that was founded in 1944. Its mission was to redevelop Europe after the second World War. Today, its focus is on poverty reduction. In fiscal 2007, The World Bank made about \$25 billion in loans, grants, equity investments and guarantees to over 100 developing countries.

Headquarters for the World Bank is in Washington, DC and consists of four major buildings totaling over 4 million square feet, each built over the last 40 years. Challenges in operating and maintaining those buildings include energy efficiency, waste reduction, material procurement, and adopting "green" practices that allow this world-leading financial institution to be a leader in sustainability.

In order to get a handle on where each of the World Bank's buildings stood on sustainability, the Facility Management group embarked on a sustainability assessment program to establish a baseline and determine where their facilities stood in terms of the LEED-EB building rating system for the USGBC.

The Bank started with an audit to identify how many potential LEED-EB points each building currently has, then to determine projects that can be implemented to either meet prerequisites, obtain additional points, or improve the overall sustainability profile of the Bank. The Bank undertook the first step in their goal of seeking LEED-EB certification over the next several years.

The evaluation team reviewed The World Bank's practices and policies and observed typical areas of each building. The team evaluated each building's potential point status relative to the U.S. Green Building Council's LEED for Existing Building Rating System Version 2.0. The LEED-EB system currently consists of "points" granted in each of the following areas:

- Sustainable Sites
- Water Resources
- Energy and Atmosphere
- Indoor Environmental Quality
- Materials and Resources
- Innovation

Each building is rated on a scale of a potential 85 points, with certification levels of “Certified” (32 points), to “Platinum” at 64 points.

The evaluation team looked at each prerequisite and point with the following criteria:

- “Achieved” – The building meets the prerequisite or point.
- “Potential” – The building does not meet the prerequisite or point, but they are within reasonable reach. For each “Potential” prerequisite or point, the team identified a project The World Bank would need to implement to meet the requirements.
- “Not Achievable” - The building does not meet the prerequisite or point and they are not within reasonable reach.
- “In Process” – After reviewing the potential projects identified by the team, The World Bank can utilize a spreadsheet tool to change any of the potential projects to “In Process”. This will allow The World Bank to see what projects are in process and see what the total costs of the “In Process” projects are.

Based on this criteria, the preliminary point total put each building close-to, or above the “Certified” level and identified a number of potential projects that could be undertaken over the next several years to enhance building system efficiency, improve material and resource use, reduce waste, and operate more sustainably. The World Bank scored very well in indoor environmental quality and energy efficiency, and continues to be a leader in green procurement recycling.

The next step in the process is to target specific World Bank facilities for certification in the LEED program and implement capital projects that will enhance their existing sustainable practices.

Bob Sensenig is a mechanical engineer in the Corporate Real Estate and Facilities Management Group of The World Bank. Bob is a Registered Engineer. He can be reached at rsensenig@worldbank.org

Chris Hodges is a Principal with Facility Engineering Associates in Fairfax, Virginia. Chris is Registered Engineer, Certified Facility Manager, and Fellow of the International Facility Management Association. He can be reached at hodges@feapc.com

Forum Briefed on NCSE Programs

David Blockstein, Senior Scientist, National Council for Science and the Environment, (NCSE), briefed the Forum on the Council's current programs.

The NCSE has been working since 1990 to improve the scientific basis for environmental decision-making. The Council operates in the following strategic areas:

1: SCIENCE SOLUTIONS

* The National Commission on Science for Sustainable Forestry provides practical information and approaches to serve the needs of forest managers, practitioners and policymakers to improve sustainable forestry.

* The Wildlife Habitat Policy Research Program produces information and tools that can accelerate the conservation of wildlife habitat in the United States.

* The Outlook Forest Research Dialogue enhances research coordination, collaboration, and partnership within the forest community.

2: STRENGTHENING EDUCATION AND CAREER DEVELOPMENT

- * The University Affiliate Program provides services to advance environmental programs to over 140 members ranging from large private or public research institutions to smaller liberal arts institutions.
- * The Council of Environmental Deans and Directors brings academic leaders together to improve their environmental programs and increase their value to students and to society.
- * The Environmentors Program prepares high school students for college programs and careers in the science and environmental field.
- * The Campus to Careers program advances young people in environmental careers through fellowships, internships, and other means.

3: NATIONAL CONFERENCE ON SCIENCE, POLICY AND THE ENVIRONMENT

- * This annual flagship conference brings together 800 - 1200 leaders in the scientific, government, business and academic communities to explore the complicated relationships between science and major environmental topics such as water, energy, health, education, forecasting, and climate change. Participants develop science-based recommendations to advance understanding and better decision-making that often catalyze new initiatives.
- * The annual John H. Chafee Memorial Lecture on Science and the Environment provides a high profile forum for communicating the importance and potential for science in decision-making.

4. COMMUNICATING SCIENCE-BASED INFORMATION

Through the Environmental Information Coalition, the online Earth Portal was launched in April, 2007. Currently over 800 scholars from 60 countries have contributed comprehensive and accessible resources for a global audience of decision-makers and the general public. The Earth Portal includes:

- * Encyclopedia of Earth with articles, e-books, reports, interactive maps, and biographies, as well as such content partners as World Wildlife Fund and the United Nations Environment Programme.
- * Earth News includes news updates from trustworthy sources and featured news stories, incorporating links from key words to Encyclopedia articles.
- * Earth Forum allows the public to engage in discussions with experts and participate in community debates.
- * Environment in Focus provides an exploration of a major issue each week - energy, climate change, environmental economics and other topics - led by a prominent expert in the subject.

For more information about NCSE, visit www.ncseonline.org.

2007 Solar Decathlon Winners Announced

The Solar Decathlon is a competition in which 20 teams of college and university students compete to design, build, and operate the most attractive, effective and energy-efficient solar-powered house. The Solar Decathlon is also an event to which the public is invited to observe the powerful combination of solar energy, energy efficiency, and the best in home design. The event takes place on the National Mall in Washington, D.C. and was held on October 12-20, 2007.

The Solar Decathlon consists of ten contests. The teams must design and build energy-efficient homes that are powered exclusively by the sun. The homes must be attractive and easy to live in. They must maintain a comfortable temperature, provide attractive and adequate lighting, power household appliances for cooking and cleaning, power home electronics, and provide hot water. The houses must also power an electric vehicle to meet household transportation needs.

The ten Solar Decathlon Contests are scored as follows: Architecture - 200 points, Engineering - 150 points, Market Viability - 150 points, Communications - 100 points, Comfort Zone - 100 points, Appliances - 100

points, Hot Water - 100 points, Lighting - 100 points, Energy Balance - 100 points, and Getting Around - 100 points.

First Place was awarded to Technische Universitat Darmstadt from Germany, which won the Architecture, Lighting, and Engineering contests. Darmstadt was one of seven teams to score a perfect hundred in the Energy Balance contest, and was praised for the integration of the PV system.

Second Place was awarded to the University of Maryland. Maryland won the Communications contest and was second in Architecture, Market Viability and Lighting. The Communications Jury praised their excellent Web site and house tour.

Third Place was awarded to Santa Clara University. They were one of five teams to score a perfect 100 points in the Hot Water contest, and one of seven teams to score a perfect 100 points in the Energy Balance contest.

For more information, visit www.solardecathlon.org

An Eco-Perspective from the Legal Profession

(Ed Note: The two excerpts in this article were provided by Ira R. Feldman, President and Senior Counsel, Greentrack Strategies, and Adjunct Faculty, Washington College of Law, American University)

Preparing for the Day After Tomorrow: Framework for Climate Change Adaption
Ira R. Feldman and Joshua H. Kahan
Journal of Sustainable Development Law & Policy, Fall 2007

" To date, the international community has dealt with the quintessential sustainability issue of our time - climate change - principally by promoting the mitigation of greenhouse gases. The rationale for such mitigation efforts, simply stated, is that if the concentration of greenhouse gases is stabilized or reduced, ultimately the severity of climate change can be alleviated. There can be no doubt that such mitigation activities are clearly necessary to the long-term well being and stability of the global environment. But the level of attention being paid to mitigation-oriented science, technology, methodology and policy by the popular press, practitioners, regulators and Congress has served to obscure the pressing need to seriously address the inevitable question of adaptation to climate change."

" The overwhelming focus on greenhouse gas mitigation tends to overshadow the adaptation half of the climate change equation. The reality is that, even if the most optimistic mitigation plans were adopted, and all greenhouse gases were stabilized immediately, residual concentrations within the atmosphere will continue to create adverse consequences well into the future. Climate change adaptation must be accepted as a norm; a stable climate can no longer be assumed. The challenge is not successfully managing a transition from one equilibrium to another, as mitigation does, but rather, adapting to a far more uncertain climatic future. In other words, at best, mitigation of anthropogenic sources of GHGs can attempt to minimize long-term climate change impacts, but cannot halt or avoid all impacts. Human-induced climate change is going to proceed, and perhaps worsen with time. Therefore, adapting to the adverse impacts of climate change is a reality, and in some instances the need is immediate."

Ecosystem Services as a Framework for Law and Policy
Ira R. Feldman and Richard J. Blaustein
Environmental Law Institute's Environmental Law Reporter (37ELR10756, October 2007)

" Ecosystem services underpin human civilization in much the same way that law and public policy support the essential stability and security that enables communities and nations to function and endure. As Stanford University biologist Gretchen Daily writes: 'Ecosystem services are absolutely essential to civilization, but modern life obscures their existence'."

" Over the past ten years, while the disciplines of economics and ecology have contributed to an improved conceptualization of ecosystem services, the law and policy framework have lagged behind. To be sure, we have seen the important contributions of a few legal scholars, led by James Salzman and J.B. Ruhl, who offer cogent proposals for protecting ecosystem services and a more recent emphasis by practitioners on the potential capture of the economic and other benefits of natural resources. However, despite these developments, it is clear that there must be substantial and significant law and policy input as ecologist and

economist-dominated discourse on ecosystem services translates into policy agendas and regulatory applications that protect vital services for present and future generations."

" The disconnect between law and ecosystem services is especially conspicuous because safeguarding ecosystem services is increasingly understood as an objective for environmental policy and regulation and fundamental to the management of natural resources. Moreover, there is a growing appreciation that the traditional single media focus (air, water and waste) of environmental law and policy cannot secure provision of the resources, health and communal needs that are central to human communities. Constructing law and policy informed by a cross-media understanding of ecosystem services would surmount that limitation of the current environmental regulatory regime. An ecosystems approach to law and policy would more effectively and seamlessly address ecosystem services-dependent human needs, such as safeguarding natural resources, ensuring health and well-being, and promoting effective stewardship of the natural and altered settings in which we live."

A Look Back - The First Forum Newsletter

(Ed. Note: To provide a historical perspective on the organizations involved with sustainable development ten years ago, and the nature of their activities, what follows is the Table of Contents of the October, 1997 Forum Newsletter).

World Bank Holds Fifth Conference on Sustainable Development
World Engineering Partnership for Sustainable Development to Conduct Project on Recycling Waste for Agriculture

American Association of Engineering Societies Represents U.S. in World Federation of Engineering Organizations

National Academy of Engineering Partners in Planet Neighborhood Project

National Research Council Board on Sustainable Development Conducting Sustainable Transition Study

U.S. Government - NGO Meeting Held on U.S. Implementation of Agenda 21

New Reports on Materials and Energy Flow Due in November

President's Council on Sustainable Development meets in Tulsa

Joint Center for Sustainable Development (NACo & USCM) Publishes First Edition of Newsletter

Department of Energy Sustainable Development Center Offers Tool Kit

Commerce Department Promotes U.S. Trade in Environmental Technologies

American Society of Civil Engineers to Develop Guidelines for Sustainable Development Practice

Civil Engineering Research Foundation Continues to Promote Global Research Agenda

Renewable Natural Resources Foundation Planning Congress on Human Population Growth

FMS Holds Workshop on Sustainable Materials

Public Works Professionals Weigh in on Sustainable Development

Sustainability a High Priority at Georgia Tech

RAND Issues Sourcebook on Sustainable Communities

National Environmental Education and Training Foundation to Host Corporate Environmental Mentoring Conference

(NOTE: Copies of the October, 1997 Forum Newsletter can be found at the ASEE website (www.asee.org) and the ASCE website (www.asce.org)

UPCOMING SUSTAINABILITY EVENTS

Call for Papers open for the Joint ACS AIChE Spring Meeting, April 6 to 10, New Orleans. Join 15,000 scientists and engineers; Topical: Sustainability Lessons, Actions and Outlooks. Over 100 sustainability related sessions on topics from climate change to metrics. Submit your abstract at: <http://aiche.confex.com/aiche/s08/t9/papers/index.cgi> or send to Benson Pair at Benson.Pair@kbr.com.

YCOSST (Youth Council on Sustainable Science and Technology) and SustainUS encourage submissions to the 2008 Citizen Science Contest, a project of SustainUS. Open to the general public to submit an essay on the topics of **Africa, Agriculture, Desertification, Drought, Land, and Rural Development**, essays will be reviewed by a peer Technical Board. The annual competition winners have their work published in the

online journal *CITIZEN SCIENTIST*, and are given the opportunity to present at the United Nations Commission on Sustainable Development to be held May 5-16, 2008 in New York City. Deadline for email submissions is: **January 1, 2008**. Go to www.sustainus.org/citizenscience for additional information.

National Council for Science the Environment presents "Climate Change: Science and Solutions" January 16-18, 2008 in Washington, DC as the 8th National Conference on Science, Policy and the Environment. For more information see www.NCSEonline.org/2008conference.

The 12th Annual Green Chemistry & Engineering Conference is rapidly approaching! The premier event of the year for chemists and engineers interested in green and sustainable innovation will be held June 24-26, 2008 at the Capital Hilton, in Washington, DC. To make your registration and housing reservations; or to learn how to submit an abstract for either oral or poster presentations for the conference, please visit www.gcande.com. Abstract submissions are due by **February 13, 2008**.

For more information on this newsletter

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