AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
AMERICAN SOCIETY FOR ENGINEERING EDUCATION (ASEE)
AMERICAN INSTITUTE OF CHEMICAL ENGINEERS (AICHE)
INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
ASME, INTERNATIONAL DEC 2006

ENGINEERS FORUM ON SUSTAINABILITY

NEW FEATURES INCLUDED IN NEWSLETTER

In addition to summarizing the presentations at the November 10 meeting of the Engineers Forum on Sustainability, this issue of the Forum Newsletter introduces two new types of articles. The first is a series of special articles drawn from the papers and speeches of distinguished individuals in the sustainability field that are both challenging and provocative. We are pleased to include a speech by Kathy Sierra, Vice President, Sustainable Development, The World Bank, and a presentation by Anthony D. Cortese, President of Second Nature. We believe that you will find these special articles to be thoughtful and stimulating. I would be pleased to hear your comments on any or all of these special articles (aagrant@localnet.com), and I will share them with my Forum colleagues.

The second new article is called "Forum Co-Sponsors Update," which will be included in the Newsletter periodically to keep our readers informed of the current sustainability activities and plans of our organizations. Our first such column is included in this issue. In addition, you will find summaries of the Forum presentations at the November 10 meeting, and other articles of interest, such as the sustainability plans and activities of the American Association for the Advancement of Science, and a recently initiated higher education climate neutrality program.

The next meeting of the Forum is scheduled for Friday, January 19, 2007, 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 to 4:00 p.m. Please mark your calendars now. Detailed agendas will be mailed out shortly. We look forward to seeing you in January.

On behalf of the Forum Co-Sponsors, we wish you a happy and sustainable holiday season!

Al Grant, Forum Chair

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SPECIAL ARTICLES

INFRASTRUCTURE AND SUSTAINABLE DEVELOPMENT: PLANNING FOR A FUTURE WORLD

(Ed. Note: This Special Article is abstracted from an address by Katherine Sierra, Vice President, Sustainable Development, The World Bank, at the ASCE International Roundtable in Chicago, October, 2006)

I believe there is a common commitment among the World Bank, the American Society of Civil Engineers (ASCE) and the World Federation of Engineering Organizations (WFEO) to sustainable infrastructure and to promoting a better quality of life to all of the world communities. The stated vision of the ASCE is "to position engineers as global leaders building a better quality of life." And, at the WFEO, one of the goals is "to foster peace, socioeconomic security, and sustainable development among all countries of the world, through the proper application of technology."

These are eminently laudable goals: building a better quality of life, fostering peace, promoting sustainable development, and using technology to do so. And these are goals that we share at the World Bank. In fact, today's Bank emphasizes poverty reduction as the overarching goal of all of our work. To that end, we are integrating our infrastructure work with our colleagues working on the environment and social development.

The Twin Pillars

At the Bank, we have what we call a "twin pillar" strategy to support our overall goal of sustainable poverty reduction. One pillar of our action concerns what we call "the investment climate" - the investments needed in developing countries to create growth, provide jobs, increase output, and raise productivity. This pillar encompasses much of the work we do in the Vice Presidency I lead at the World Bank - but it also includes helping to shape the investment climate with sensible economic policies, good governance, strong institutions, and the rule of law.

The second pillar of our strategy revolves around empowering and investing in people. Here, we are helping countries to give people the ability to shape their own lives, to make decisions on their own, for themselves, their families, their communities, and their country.

At the World Bank, we believe that infrastructure is a key part of the development challenge, and its impacts are among the most important. In our approach to infrastructure, we look at its impact, its "ripple effect", if you will, through three "lenses" - each different, but complementary. I'd like to share this approach with you now.

Economic Growth

First, we look at infrastructure for economic growth. Quite simply, no country can achieve sustained GDP growth without investment in infrastructure. Whether it is energy services, water treatment, railways, ports and airports, telecommunications, urban services, or rural facilities, no country in the world has ever grown its economy without investing in its infrastructure.

Yet there is a gap on the part of the international community in terms of knowing what investment is required and then following through on commitments to make those investments. For instance, the International Energy Agency has estimated that more than $300 billion in capital investment will be needed each year for the next 25 years so that developing and transition economies can meet their energy needs. Today, the world is investing only a fraction of that. `

Today, we have the technologies to solve this problem. We have the intellectual resources to bring energy to the poor. We have governments and corporations ready to leap in and start the work of ending energy poverty. What we don't have, though, are the financial resources of the international community to bring this about.

Human Growth

The second "lens" that we use is to look at infrastructure for human growth. Here, the connection is quite clear and we can see the immediate impact of infrastructure investment and how it directly affects people. Without clean water, people are much more susceptible to disease and illness. Without electricity, homes cannot be lit at night so that children can study their school lessons. Without telephones, local companies cannot enter the world's trading systems. And without roads, farmers cannot easily get their produce to markets.

Smart Growth

The third "lens" that we use to think about our work is infrastructure for smart growth. What do we mean by smart growth? The answer may seem obvious...We mean investments that lead to growth in GDP that is environmentally sustainable, socially acceptable, locally desirable, and politically achievable. Smart growth also means learning from what we've done in the past and drawing lessons for our future work.

Lessons Learned: Confronting Corruption

One key lesson was that we had to get tough - and stay tough - on corruption. Today, we are working with a broad coalition of stakeholders to eliminate corruption from the projects we're involved with. For instance, in the Extractive Industries Transparency Initiative, we want to ensure that revenues from oil, gas and mining are used to fight poverty and promote development. Other sectors, such as the construction industry, may also benefit from similar initiatives in the future.

Lessons Learned: Capacity Development

Part of our work on anti-corruption will also touch on capacity development. I know that this is an important topic for you and your organizations. It is also important for the international community: adequate country capacity is one of the critical missing factors in our collective efforts to meet the Millennium Development Goals.

We know that our operations need to take an integrated view, building capacity with, and within, each of three elements: 1) Operating environment: Tax and regulatory regimes; stable government, respect for the rule of law. 2) Organization: Ability to carry out policy decisions; training and adequate compensation for civil servants; proper work flow and deliverables. 3) Individuals: training and individual growth; acceptance of personal responsibility for delivering results.

A Sustainable Future

Growth is essential to reducing poverty and to reaching the Millennium Development Goals by 2015. But we also know that growth at any cost is not sustainable. Responsible growth - growth that embraces both environmental sustainability and social development - is what we need to maintain the increase in human wealth, in health, in human skills, in social equity, that are targets of the MDGs.

The World Bank is scaling up its investments in infrastructure by about a billion dollars a year. BY next year, we plan to be lending about $9-10 billion dollars annually - approaching 40% of total Bank lending, our historic average. These are large sums, but I ask you to remember that the Bank is still small financially. Total investments in developing countries, from country

governments themselves, Official Development Assistance, and the private sector comes to about $1.5 trillion per year. This is about 100 times what the Bank lends yearly, so we are just one per cent of total capital flows.

New Opportunities, New Efforts

I would like to see the World Bank and your profession work more closely. In our project cycle, for instance, I can see more involvement from engineers in two areas: one is to help identify projects that are financially, economically, socially, and environmentally sound. A second area for closer cooperation is in project preparation, where our clients conduct various technical studies and prepare project documentation. I would also appeal to you and your members to exercise your "creative thinking quotient" and suggest to us lower-cost engineering solutions that respond to the acute challenges of service delivery to the poor.

We should judge our successes initially by how well we mobilize support and provide quality sustainable development services to people. In the longer term, though, we should judge our work on the results it brings in terms of economic, human, and smart growth and, in the end, on poverty reduction. The poor of the world deserve no less.

RESTRUCTURING TECHNOLOGY AND THE ECONOMY TO CREATE A HEALTHY, JUST AND SUSTAINABLE SOCIETY

(Ed. Note: This Special Article is the text of the presentation to the Engineers Forum on Sustainability made by Anthony D. Cortese, Sc.D., President, Second Nature, at the National Academy of Engineering, November 10, 2006)

The Challenge

Finding a way for 6-9 billion humans to live in harmony with natural world and with each other is the defining challenge of the 21st century.

Humanity is at a crossroads. For the first time in human history, humans are pervasive and dominant forces in the health and well being of the earth and its inhabitants. We are the first generation capable of determining the habitability of the planet for humans and other species. We do not exist separate from nature and without a healthy planet because the earth provides all resources, critical ecosystem services and assimilates wastes – all essential in support of human existence. In economic terms, society and the economy are wholly owned subsidiaries of the biosphere. Yet, no part of the earth is unaffected by humans and the scale of our impact is huge and growing exponentially. All living systems are in long term decline and are declining at an increasing rate according to all international scientific, health and policy organizations.

At the same time, the gap between rich and poor is greater than any time in the last century. The wealth of the 225 world's billionaires is the equivalent of the poorest 2.7 billion people. 2.7 billion people are without sanitation; 1.1 people lack access to clean drinking water; 800 million people suffer from severe malnutrition; 1 billion people are either under- or unemployed; and political instability on 3 continents.

And the challenge that will accelerate all the negative trends I just cited is global warming that is leading to unprecedented destabilization of the earth's climate. Human progress has accelerated in the last 10,000 years during a time of a relatively stable climate. Global warming is not an environmental issue it is a civilization issue – it will affect the progress and survival of civilization as we know it. Global warming is real, it's here, it is worse and happening faster than predicted by the most conservative scientists. While we debate the issue, we must understand that the

earth responds to physical changes and works on its schedule – it doesn't know opinions or wait for human decisions to reach a state of dynamic equilibrium.

This is happening with 20% of the world's population consuming 80% of the world's resources. How will we cope in a world that will have 9 Billion people and that plans to increase GWP by 500% by 2050 – especially with China and India entering the world consumer stage. This is an awesome ethical responsibility and a huge challenge for us, especially in higher education.

Creating a New Paradigm

We have an unwritten assumption that is hard-wired into our worldview – that these problems will all be solved by continuing the modern Western economic, technological and sociopolitical model. The limiting factors for future economic growth is not labor or technology. (Hawken, 1997) They are natural capital: the size of the fish stock, not the number and size of the fishing boats, and social capital: the ability to make market corrections and to govern society to achieve health, peace, security, social equity and stability.

As Einstein said, "We can't solve today's problems at the same level of thinking at which they were created."
We need an unprecedented shift in the way we think and act. We currently view health, social, economic, political, security, population, environmental and other major societal issues as separate, competing and hierarchical when they are really systemic and interdependent. For example, we do not have environmental problems, per se. We have negative environmental consequences of the way we have designed our social, economic, technological and political systems. We have a de facto systems design failure. This is not intentional – it is a function of a worldview that is no longer suitable to create a world that works for everyone. The 21st century challenges must be addressed in a systemic, integrated and holistic fashion.

The paradigm shift is often called creating sustainability. Sustainability requires that we focus simultaneously on systemic changes that improve health for current and future humans, build strong, secure and thriving communities provide economic opportunity for all by restoring and preserving the integrity of the life support system. It implies that we try to create multiple "win" strategy. For example, energy efficiency reduces costs, greenhouse gases, air pollution, dependence on foreign oil and need for increasing defense spending. Eradicating poverty eliminates hunger and stabilizes population. Reforestation fixes carbon, increases aquifer recharge, reduces soil erosion and reduces flooding.

What would the transition look like? Imagine future scientists, engineers and business people designing technology and economic activities that sustain rather than degrade the natural environment and enhance human health and well-being. Imagine a future where we design our technology inspired by biological models operating on renewable energy. Imagine a future where the concept of "waste" is eliminated because every waste product is a raw material or nutrient for another species or activity, or returned into the cycles of nature

Imagine that all professionals understand their connections to the natural world and to other humans. What if people truly know where products and services come from, know where wastes go, and know the consequences to humans and other living species and how to minimize this ecological footprint (our impact on the Earth).
The average American does not know that we consume our body weight in solid materials daily. For every 100 lbs. of product produced in the United States, we actually move a staggering 3,200 lbs. of material and energy, over 94 percent of which goes to waste before we ever see the product or the service. (Hawken, 1997) Our ecological footprint is largely invisible to most of us. We must make it visible to understand our impact and encourage changes to greatly reduce that footprint.

Imagine a future where we have stabilized the population at a level that is within the carrying capacity of Earth's ecosystems because we have increased the education, as well as the social and economic status, of women worldwide. Imagine that we have timely and accurate economic and ecological signals: micro-economic signals for price that reflect the true social and environmental cost to society; macro-economic indicators that reflect the true well-being of society and the Earth; and ecological signals that we receive in time to prevent or remedy damage to humans or the environment. Current signals are either incomplete, highly inaccurate, lead us to a false sense of security, or are too late to prevent damage. For example, in the US we tax income and investment – things we want to encourage. We subsidize or do not tax the consumption of fossil fueled energy, consumption of resources and the production of pollution and waste.

Making the Transition to Sustainability

The transition has begun in virtually every sector. I will focus here on higher education's role.

Higher Education

What would higher education look like? The education of all professionals would reflect a new approach to learning and practice. A college or university would operate as a fully integrated community that models social and biological sustainability itself and in its interdependence with the local, regional and global community. In many cases, we think of teaching, research, operations and relations with local communities as separate activities; they are not. All parts of the university system are critical to achieving a transformative change that can only occur by connecting head, heart and hand. To graduate students who can overcome this larger, pervasive form of learning, the educational experience of graduates must reflect an intimate connection among curriculum and (1) research; (2) understanding and reducing any negative ecological and social footprint of the institution; and, (3) working to improve local and regional communities so that they are healthier, more socially vibrant and stable, economically secure and environmentally sustainable.

The trends in higher education are definitely in the right direction and encouraging, especially in operations (see www.aashe.org). Here are a few examples.

- At least 70 institutions have adopted long-term commitments to address global warming
- At least 100 institutions are purchasing electricity generated from renewable sources or generating it themselves – all the electricity is from renewable energy at 10 institutions
- At least 56 institutions have one or more LEED certified building on campus
- Several hundred colleges and universities are implementing plans to make their campuses more pedestrian and bicycle friendly, thereby saving money and reducing their ecological footprint.
- At least 200 colleges are purchasing food from local, organic farms.
- 14 colleges and universities have committed to becoming carbon neutral.

On the educational front, hundreds of colleges and universities are producing graduates at all levels with degrees in environmental health, science, engineering, economics, policy and management. Arizona State University just established a School of Sustainability which will confer BS, MS and PhD degrees in sustainability. Several are integrating environmental education across the curriculum. However, sustainability is not the foundation of learning at all but a few colleges and in special schools.

The challenge is to make sustainability become a foundation of all learning and practice in the next decade – the time frame in which scientists tell us we must have the transition to sustainability underway. An encouraging effort, that I have the privilege of helping to initiate, is the American College and University Presidents Climate Commitment which will be launched in January. The ACUPCC is a high-visibility effort to address global warming by getting higher education leaders to sign a joint commitment to achieve climate neutrality for their campuses in a reasonable time frame – fast enough to avoid the worst impacts of climate change and at a pace and in a manner that will enable them to maximize

economic and other benefits to their communities while minimizing short-term costs. The immediate goal is to secure commitments by at least 200 college and university presidents by June 2007, and expand to at least 1000 by the end of 2009. The effort is modeled after the U.S. Mayors Climate Protection Agreement.

Conclusion

We have a choice. We can continue business as usual and let nature, political instability, disease or war set the limits. Or we can take deliberate, concerted action to create a healthy, secure, enjoyable and sustainable world.
I hope that we will do the latter and do it quickly. The engineering profession will be key in this effort to create the technological part of the revolution that is necessary. And the American Society of Engineering Education must play a prominent role in encouraging the engineering profession to do so.

PROFESSIONAL ORGANIZATIONS

ASLA CONDUCTS GREEN ROOF DEMONSTRATION PROJECT

At the November 10 Forum meeting, Nancy Somerville, Executive Vice President/CEO, American Society of Landscape Architects (ASLA), discussed the ASLA Green Roof Demonstration Project. She noted that in 2004, faced with the need to replace the existing roof of the Society's headquarters building in Washington, D.C., the ASLA Board voted to install a green roof. The goals of the green roof are to maximize and serve as a demonstration project on the environmental benefits of green roofs, and to showcase what landscape architects contribute to this project type. Completed in the spring of 2006, ASLA's green roof was designed by the landscape architecture firm of Michael Valkenburgh Associates, Inc., with consulting landscape architect Conservation Design Forum. DMJM Design served as the project architect, and Robert Silman Associates was the structural engineer.

The project began with a structural assessment to ensure that the roof could accommodate the additional load of a green roof, at around 40 pounds per square foot. The ASLA roof design includes two elevated "waves" formed from rigid insulation and covered with a green roof system. The waves create a pleasant foliage-enclosed space and block the view of the rooftop HVAC systems. Surrounding these waves is an extensive green roof system covered by aluminum grating that allows visitors to walk over the plant material without damaging it. The designers made maximum use of the structural capacity of the building, varying soil depths and plantings to take advantage of differing load capacities.

ASLA has committed to monitoring the performance of the roof over time for: stormwater retention, water quality, temperature, and plant growth. Flow meters and rain gauges are in place. Temperatures on the roof will be tracked against temperatures on the roof of a neighboring building. An environmental engineering consultant has been retained to analyze and compare water quality collected on the roof and runoff collected from roof drains.

Green roofs have significant benefits both for the public/community and for the individual building owner.

Primary public benefits include controlling stormwater runoff, improving air quality, and reducing the urban heat island effect. In natural systems, such as vegetated landscapes, rain and snow melt are absorbed and filtered by the land and plants. The more green space, better control of water will occur.

The most significant benefits of green roofs for building owners are reductions in building operating costs, significantly longer roof life and lower life-cycle costs for the roof, and increased property value.

Additional information on the ASLA green roof is available on the ASLA website at asla.org, which also features a green roof webcam. Tours and presentations on the roof are available by prior appointment: contact ASLA at 202-898-2444 for more information.

AAAS BRINGS TOGETHER SCIENTISTS INTERESTED IN SUSTAINABILITY

The American Association of the Advancement of Science (AAAS) is increasing its involvement in the area of Science and Innovation for Sustainable Development. The kickoff of this effort is the 2007 AAAS Annual Meeting, being held February 15-19 in San Francisco. The Meeting theme: "Science and Technology for Sustainable Well-Being" will bring together thinkers and decision-makers from a host of scientific disciplines to discuss many of the key national and international issues in sustainability.

A special session at the meeting will focus on university-based sustainability science and engineering programs. AAAS is currently surveying existing programs and will use the meeting to share experiences of both the challenges and successes of existing programs and identify how programs might develop and interact, not only in the U.S. but globally. If you are part of an engineering sustainability academic or research program, you can learn more about the project and fill out the survey at: http://sustainabilityscience.org/usurvey/.

Following the meeting, AAAS plans to continue the work of connecting the many scientists and engineers of all disciplines that are interested in sustainability. One of its projects is the online Forum for Science and Technology for Sustainable Development (http://sustainabilityscience.org). The Forum features leading projects, programs, and researchers focused on science and technology for sustainability, as well as relevant publications, events, and opportunities. The online Network of researchers and policy makers will be expanding to include interested scientists seeking collaborators for interdisciplinary projects. There are further plans to engage this Network in topical discussions on some of the key problems that sustainability science seeks to solve. Membership in the network is free, and the online application is available at: http://sustainabilityscience.org/joinnetwork.html.

For more information about these efforts or to suggest further activities, please contact Sarah Banas in AAAS' Office of International Initiatives: sbanas@aaas.org or (202) 326-6492.

AAES ADDRESSES NATIONAL ACADEMIES' COMPETITIVENESS REPORT

At its December, 2006 meeting, the American Association of Engineering Societies (AAES) Board of Directors focused on promoting the U.S. engineering community's pursuit of the recommendations in "Rising Above the Gathering Storm," a report of the National Academies. (The Engineers Forum on Sustainability is affiliated with AAES as a Working Group).

The National Academies created a distinguished committee, which identified two key challenges; creating high-quality jobs for Americans, and responding to the nation's need for clean, affordable, and reliable energy. To address these challenges, the committee structured its ideas according to four basic recommendations that focus on the human, financial, and knowledge capacity necessary for U.S. prosperity. The recommendations are as follows:

A. Increase America's talent pool by vastly improving K-12 science and mathematics education.

B. Sustain and strengthen the nation's national commitment to long-term basic research that has the potential to be transformational to maintain the flow of new ideas that fuel the economy, provide security, and enhance the quality of life.

C. Make the United States the most attractive setting in which to study and perform research so that we can develop, recruit, and retain the best and brightest students, scientists, and engineers from within the United States and throughout the world.

D. Ensure that the United States is the premier place in the world to innovate; invest in downstream activities such as manufacturing and marketing; and create high-paying jobs based on innovation by such actions as modernizing the patent system, realigning tax policies to encourage innovation, and ensuring affordable broadband access.

As background for the AAES discussion, Deborah Stine, Study Director, summarized the report's key findings and related developments; and Jim Turner, Chief Democratic Counsel, Committee on Science, U.S. House of Representatives, reviewed the potential for Congressional action. In addition, Greg Pearson, NAE Program Officer, reported on current efforts to develop effective messages for improving public understanding of engineering; and Stacy Ober, NSPE Public Relations Manager, described the reality show "Design Squad," a PBS response to the need for children, especially during junior high, to learn the importance of engineering in our modern world.

The AAES Board of Directors asked its American Competitive Initiative (ACI) Working Group to develop an action plan to promote and support implementation of the recommendations in the National Academies report.

For more information on AAES activities, visit www.aaes.org.

FORUM CO-SPONSORS UPDATE

(Ed. Note: This new column will be published in the newsletter periodically, to inform the reader of the current sustainability activities and plans of the Forum Co-Sponsors)

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS - In 2006, the IEEE released Standard 1680 that sets benchmarks for green manufacturing and lifecycle management in electronics. This IEEE standard, also known as The Electronic Product Environmental Assessment Tool (EPEAT), helps individuals as well as organizational purchasers reduce the environmental impact of the computers they buy, use and discard.

EPEAT was initiated in 2003 by the Zero Waste Alliance with support from the U.S. Environmental Protection Agency. The Green Electronic Council (GEC) was selected to implement the web application which allows manufacturers to declare the eligibility of their products according to the standard, and provides the registry of products for purchasers. GEC will also run the independent, rigorous verification program.

For public outreach on sustainability issues, IEEE continues to develop its Technology Discourses Program. These include programs on wind power, earth observation, green manufacturing, e-waste, and ethics that will be made available through IEEE.TV www.ieee.org/ieeetv. During 2007, IEEE plans to involve its members in Technology Discourses" through its sections, chapters and student branches. Topics will include e-waste, green engineering, renewable energy, and climate change.

Since sustainability issues cross discipline boundaries, the IEEE welcomes partnerships with other engineering organizations interested in utilizing broadband and broadcast media for public outreach on critical public policy issues related to technology.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS - ASME hosted its 2006 International Mechanical Engineering Conference in Chicago from November 5 to 10. As part of the event, ASME's Technology and Society Division held a number of technical sessions on sustainable

engineering. These sessions included presentations on the impact of sustainability in areas of nanotechnology, life cycle design, and education. The sessions included 1) Sustainable and Market-Based Analyses of Cooking Technologies in Developing Countries, 2) What Will It Take to Deliver a Zero-to-Landfill Product, 3) Midstream Modulation of Nanotechnology in an Academic Research Laboratory, and 4) Designing Functional Products in the Best Interest of the User - With a Factor 10 Reduction in Life Cycle Cost: Example, a (Solar) Air Conditioning System.

More information about the sustainability panel sessions can be found at http://www.asmeconferences.org/Congress06/TechnicalProgramOverview.cfm#718.

AMERICAN SOCIETY FOR ENGINEERING EDUCATION - ASEE has the following Board of Directors Statement on Sustainable Development Education:

Engineering students should learn about sustainable development and sustainability in the general education component of the curriculum as they are preparing for the major design experience. For example, studies of economics and ethics are necessary to understand the need to use sustainable engineering techniques, including improved clean technologies. In teaching sustainable design, faculty should ask their students to consider the impacts of design upon U.S. society, and upon other nations and cultures. Engineering faculty should use systems approaches, including interdisciplinary teams, to teach pollution prevention techniques, life cycle analysis, industrial ecology, and other sustainable engineering concepts.

Case studies, including studies of university-industry-government partnerships, can be used to illustrate the importance of the multidisciplinary aspects of designed systems, the impacts of those systems upon society and the environment, and the practical viability of the sustainability concept.

ASEE believes that engineering graduates must be prepared by their education to use sustainable engineering techniques in the practice of their profession and to take leadership roles in facilitating sustainable development in their communities.

AMERICAN SOCIETY OF CIVIL ENGINEERS - ASCE conducted a full day of sustainability programming at its October, 2006 Annual Conference in Chicago. Included were 1) a Sustainability Symposium on "Sustainability in Practice and Education: A Global Perspective," 2) a Sustainability Luncheon at which Kamel Ayadi, President of the World Federation of Engineering Organizations (WFEO), spoke on the Millennium Development Goals, and 3) an International Roundtable on "Investing in Sustainable Infrastructure" with an address by Kathy Sierra, Vice President, Sustainable Development, The World Bank.

ASCE is currently developing a Society-wide Action Plan for the Sustainability Protocol signed by ASCE, ICE, and CSCE, in July, 2006. ASCE is also preparing an assessment report and recommendations on education for sustainable development.

INSTITUTE FOR SUSTAINABILITY, An AIChE TECHNOLOGICAL COMMUNITY - The Sustainable Engineering Forum announces its topical conference: Practical Approaches to Sustainable Development, April 22- 26 in Houston, TX. Sessions include:

T9000 Health, Environment and Safety Management Systems
T9001 Social Responsibility and Community Outreach
T9002 Transparency and Sustainable Reporting
T9003 Business Case for Sustainability
T9004 Sustainable Chemical Feedstocks
T9005 Future Ethanol Production Routes
T9006 Green Engineering Approaches to Sustainability

T9007 Sustainable Biofuels and BioProducts
T9008 Practical Approaches to Industrial Water Sustainability

To get involved with this dynamic program, contact the program chairs Dr. Robert Hesketh, Rowan University, hesketh@rowan.edu or Benson Pair, Chief Technology Engineer, KRB Benson.Pair@halliburton.com.

ACADEMIA

HIGHER EDUCATION CLIMATE NEUTRALITY PROGRAM INITIATED

The American College & University Presidents Climate Commitment (ACUPPC) is a high-visibility effort to make campuses more sustainable and address global warming by garnering specific institutional commitments to reduce and ultimately neutralize greenhouse gas emissions on campus. The ACUPPC is a program being developed by the Association for the Advancement of Sustainability in Higher Education (AASHE), ecoAmerica and Second Nature. The effort is modeled after the U.S. Mayors Climate Protection Agreement led by Seattle Mayor Greg Nickels.

The American College & University Presidents Climate Commitment itself is a pledge on the part of presidents and chancellors to commit their institutions to making the transition to a climate neutral society a major priority. These leaders are asking and leading their institutions to develop a plan on how to both become climate neutral and provide the education and research necessary for the rest of society to re-stabilize the world's climate.

The ACUPPC has three major phases:

Phase 1: Laying the Groundwork: September 2006 - January 2007

Development of commitment documents, project plans, a solicitation/enrollment program, a communications plan, support materials and a website to support the launch and development of the ACUPPC. Using these materials, the partners will recruit a "Leadership Circle" of 15 to 25 college and university presidents who will become the public face and lead sector supporters of the program.

Phase 2: Launch to the Higher Education Community: January - June 2007

The ACUPPC leadership will launch the effort in January 2007 with the goal of recruiting 200 presidents by June 2007. This effort will be supported by Leadership Circle and AASHE solicitations of new signatories launch of the website, a direct marketing initiative targeting all American colleges and university presidents, and preparation for a public launch.

Phase 3: Public Launch and Program Expansion: June 2007 through 2009

The Leadership Circle will host a public launch and summit meeting at a major university in June 2007. The communications/coordination program will be managed by AASHE to enlist additional signatories and provide at least annual reporting on program progress. The ultimate goal is to launch a broad, continuous, higher education effort on climate change with at least 1000 participating institutions.

The ACUPPC has been created by the Association for the Advancement of Sustainability (AASHE) and ecoAmerica. AASHE is a member-driven, independent 501(c) (3) association of colleges and universities working to advance sustainability in higher education. EcoAmerica is a non-profit social research and marketing organization dedicated to increasing support for America's natural heritage. AASHE and ecoAmerica will also enroll other organizations, including

NGO's, foundations and corporate sponsors in the initiative.

For more information, contact Tony Cortese, Project Manager, at acortese@secondnature.org, Judy Walton, AASHE, at judy@aashe.org, and Lee Bodner, ecoAmerica, at lee@ecoamerica.net.

OTHER ORGANIZATIONS and DEVELOPMENTS

FORUM BRIEFED ON VIRGINIA SUSTAINABLE BUILDING NETWORK

At the November 10 Forum meeting, Annette Osso, Executive Director, Virginia Sustainable Building Network (VSBN), described her organization's program and activities. VSBN is the only statewide organization to provide information, technical assistance, education, and networking about green building and sustainable development. VSBN was incorporated as a non-profit (501-c-3) organization in 1995 by a diverse group of individuals, who represent housing, banking, utility, construction, government, and environmental interests. The VSBN leadership is committed to developing an organization that changes the way homes, commercial and public buildings, and communities are designed and built.

Beginning in early 2001, VSBN was designated by the Virginia Department of Mines, Minerals and Energy as the Virginia Rebuild America Program Representative. The U.S. DOE Rebuild America Program is a network of community-driven volunteer partnerships that foster energy efficiency and renewable energy in commercial, government, and institutional buildings. VSBN and the Rebuild Virginia Program have engaged 38 partnerships around the state since 2001. During 2006 the Rebuild Virginia Program will focus on K-12 schools, colleges and universities, local governments and other commercial buildings To enhance the programs effectiveness, VSBN is partnering with state agencies, including the Virginia Department of Education, the Virginia Department of Environmental Professionals, and with other initiatives such as the Association of Energy Conservation Professionals, the Main Street Program, and private partners, such as James Madison University, Pepco Energy Services, and Moseley Architects.

VSBN will also continue to bring the message to builders that energy efficient and green building practices are cost-effective, and have increased market appeal to buyers, through the Earthcraft House Single Family Program. This program, promoting healthier indoor air quality, lower utility bills, more durability and less maintenance, and greater comfort, has already engaged over 100 builders and certified over 1500 homes in the Atlanta area. In addition to being adopted in Virginia, it is also being introduced in several southeastern states, including South Carolina, Tennessee, and Alabama.

For more information, contact Annette Osso, VSBN Executive Director, at 7033-486-2966, vsbn@vsbn.org.

FORUM BRIEFED ON SUSTAINABLE WATER RESOURCES ROUNDTABLE

At the November 10 Forum meeting, Tim Smith, Coordinator, Sustainable Water Resources Roundtable (SWRR) briefed the attendees on the Roundtable's purposes and activities. Since 2002, the SWRR has brought together participants from federal, state, corporate, non-profit and academic sectors to advance the knowledge and decision-making needed to sustain the nation's water resources. SWRR is one of four natural resource roundtables supporting the efforts of the White House Council on Environmental Quality to develop a comprehensive set of national environmental indicators. The other roundtables address critical issues and indicators for the management of forests, rangelands, and minerals and energy. SWRR is also chartered by the Advisory Committee for Water Information, which advises federal agencies responsible for managing water resources. SWRR has hosted multi-stakeholder meetings on research needs and indicators in California, Maryland, Minnesota, Virginia and Washington, D.C. It receives funding from public agencies and the private sector.

In December, 2005, SWRR published a report with chapters on the role of indicators, conceptual foundations for the work of the Roundtable, and criteria and indicators on the sustainability of water resources. The report also covers research needs for sustainable water resources management. A final chapter discusses conclusions, recommendations, and future work. The report can be found at http://water.usgs.gov/wicp/acwi/swrr/Rpt_Pubs/prelim_rpt/index.html.

The report is based on a framework of 17 key indicator categories, grouped as follows: 1) SYSTEM CAPACITIES, QUALITY AND ALLOCATION (Gross Water Availability, Total Withdrawals for Human Use, Water in the Environment, Water Quality, Total Capacity to Store, Deliver, and Treat Water Supply Over Time, and Social and Organizational Capacity). 2) CONSEQUENCES OF THE WAY WE ALLOCATE WATER CAPACITY (Environmental Conditions, Resources and Conditions, The Quality and Quantity of Water for Human Uses, and Resource Withdrawals and Use). 3) EFFECTS ON PEOPLE OF THE CONDITIONS AND USES OF WATER RESOURCES (Human Conditions). 4) IMPORTANT FACTORS AFFECTING WATER RESOURCES (Land Use, Residual Flows, Social and Economic Processes, and Ecosystem Processes). 5) COMPOSITE SUSTAINABILITY ASSESSMENT (Water Use Sustainability, and Water Quality Sustainability).

Further information on SWRR can be found at http://water.usgs.gov/wicp/acwi/swit. Contact David Berry at davidberry@aol.com or Tim Smith at etsmithusa@netscape.net.

UPCOMING SUSTAINABILITY EVENTS

The Civil Engineering Forum for Innovation (CEFI) is hosting an innovation conference in Washington, D.C. on January 30-31, 2007, to address "Challenges of Change: Applying Innovation and Knowledge to Balance Risk and Sustainability for Resilience." For further information, visit www.asce.org/cefi/

The Institute for Sustainability, An AIChE Technological Community, will hold three virtual conferences to discuss industry benchmarking and the AIChE Sustainability Index in January 2007. For additional information, contact darls@aiche.org and ccobb@houston.rr.com

There is still time to submit a presentation to the “Practical Approaches to Sustainable Development,” which contains sessions in all aspects of sustainability: Social, Environmental and Technical. AIChE Spring Meeting, April 22-26, 2007, Houston Hilton. Submit abstracts at http://aiche.confex.com/aiche/s07/cfp.cgi

The Call for Papers for the 2007 Green Chemistry &
Engineering Conference is now open. The deadline for submissions is February 28, 2007. “From Small Steps to Giant Leaps: Breakthrough Innovations for Sustainability,” June 25-28, 2007,Capital Hilton, Washington, DC. To learn more about the conference, and submit your paper, please visit www.GCandE.org

ASME and AIChE, Institute for Sustainability, announces a virtual conference on sustainability. The Brown Bag lunch series will begin in March 2007. Learn more and pre-register for this virtual conference at http://www.asme.org/Education/Courses/Webinars/NEWVirtual_Symposia.cfm.

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