AEESP Newsletter

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Highlights

Need to renew your 2010 AEESP membership? Go to "Join > membership renewal" on the AEESP website: ***AEESP.org***

AEESP Newsletter Submissions

Please send news, conference announcements, job postings, letters to the editor, and other contributions to the newsletter to the editor, Joe Ryan, at joseph.ryan@colorado.edu. The next newsletter will appear in September, 2010.

President's Letter

Moving the Dial: Positioning AEESP for Influence

Dear Colleagues:

For those of us in regions of the country experiencing real winters, Spring is upon us, and aligned with that a boost of productive energy, the birth of new ideas, the 40th anniversary of Earth Day, and a board meeting focused on discussing AEESP strategic planning in addition to our routine committee reporting (see report from Joel Burken, Vice President, p. 2).

Chalk it up to the camaraderie in our organization and on the Board of Directors (BOD) to have the ten of us productively discuss and coalesce around strategic directions for our organization in the face of global and economic drivers that are influencing our profession. The board is still vetting the outcomes, which will be sent out to all AEESP members for your feedback soon. Without disclosing too much, the objective was to explore to what extent our organization is leveraging its assets to effectively respond and position itself in our changing funding, teaching, and professional environment. The facilitator, William Slebos, pushed us to explore our diverse perspectives and helped to avoid the outcome becoming "motherhood and apple pie," by probing AEESP's position for a greater leadership role.

Over the last four decades since the first Earth Day, the research and education community, consultants, and industry have responded to air, water, and pollution regulation. Regulation has and will continue to influence what we do, because that is what largely drives the funding. However, the success of traditional environmental regulation has resulted, to a large extent, in general acceptance, and even commoditization of academic and professional activities. On the other hand, thanks to the success of environmental issues having gone mainstream in the public and private domain, the second half of the first decade of this century has seen shifting influences to our profession.

Peter Adriaens

Environment and sustainability are becoming increasingly integrated in corporate strategy, the Securities and Exchange Commission is requiring public companies to disclose their exposure to future climate and water risks, and consultancies and NGOs are responding to (and sometimes leading) this shift. Global economies are committing to green innovation and value creation, and regulatory approaches to environmental issues increasingly make use of market instruments. So, one of the central questions to AEESP is whether we are addressing "21st century opportunities in a 20th century straightjacket"? If this is the case, then how do we move the dial to our benefit, considering the richness of the AEESP membership and its programs, without losing what we're about.

Enter this year's Presidential Strategic Planning Initiative on *"Integrating Economic and Financial Principles into Environmental Engineering Research and Education"* which I alluded to in my first letter. The ad hoc committee (charged by the AEESP President, ex officio member) is chaired by Greg Characklis (University of North Carolina) who co-developed the charge, with its membership representing academia (Joe Hughes, Georgia Tech; Jenna Davis, Stanford; Mitch Small, Carnegie Mellon), funding agencies (Bruce Hamilton, NSF), NGOs (Len Shabman,

continued on page 3

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AEESP Membership Application online:

www.aeesp.org/membership/AEESP_member_app.pdf

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Spring 2010 AEESP Board Meeting Highlights

Submitted by JOEL BURKEN, MISSOURI S&T

The AEESP Board of Directors gathered at Duke University on March 29–30 and had a great meeting due to the hospitality and efforts of Mark Wiesner and Eileen Brand. In a bit of a break from the usual format, the meeting was expanded to two full days. The first day was spent in strategic planning mode, looking at the overall activities of AEESP and how they relate to the longer term vision of AEESP. The second day was action-packed, punching out the usual one-and-a-half days of work in one day. Here are the highlights of our two days at Duke:

The Board retained the services of William Slebos as a moderator and guide in our strategic planning efforts. The team developed a vision of where AEESP can accomplish more with the valuable efforts the members put forth, so that we can all serve our profession and members to the utmost of our abilities and resources. In the efforts of the day, specific strategic goals were identified and potential strategic and tactical tasks and objectives were identified for associated goals. The Board will be developing a more defined strategic plan and seeking input from members soon.

Front Row: Sharon Jones, Joanne Fetzner, Margaret Lang, Mark Wiesner, Jeanne VanBriesen, Dan Oerther

Second Row: Peter Adriaens, Bill Cooper, Steve Dentel, Nancy Love, Joel Burken

The board reviewed the proposals for the 2011 AEESP conference venue and theme. Three strong proposals were evaluated by the conference selection committee and recommendations were forwarded. The selected venue and theme was the University of South Florida with the theme "Global Sustainability and Environmental Engineering & Science Implications for Research, Education, & Practice."

The Board wants to promote regional diversity in venues and was pleased to broaden to the southeast and will be looking to the western US for the following call for proposals.

Lectures and activities with affiliated organizations were discussed and business was handled—see the advertised talks and sessions at AWWA, A&WMA, and WEFTEC in this newsletter (pages 4 and 5). The annual AEESP Business meeting and Meet & Greet will be Monday October 4th at WEFTEC in New Orleans.

Despite the economic hard times many individuals and campuses are feeling, AEESP had the greatest growth of 117 new members in 2009 and also retains a very high renewal rate among its members. The Board also discussed the Emeritus, Lifetime, Fellow, and Legacy membership categories and how to best serve and utilize the AEESP members at all levels. The membership committee will be charged with reviewing the criteria at different member levels.

Congressional Visits Day was planned with the Government Affairs Committee. This year, Peter Adriaens, Joel Burken, Steve Dentel, and Allen Davis will participate for AEESP and descend on Capitol Hill to advocate the mission and membership of AEESP. Overall, we expect to straighten things out in our one-day visit.

The board discussed possible avenues of continued coordination with AAEE in areas where we overlap in goal and mission. AAEE President Cecil Lue-Hing called in to the meeting and proposed that interactions of the organizations might include shared information in newsletters and dissemination publications and materials. Discussions also touched upon the Body of Knowledge proposed by the American Academy of Environmental Engineering (AAEE). Peter Adriaens will return the interactions at the upcoming AAEE Board Meeting in Washington, DC.

The Board scheduled an extra conference call to maintain the progress and action of the strategic planning efforts for May, and we will reconvene as a Board in New Orleans on October 5th and 6th.

President's Letter, *continued from page 1*

Resources for the Future), and consultancy (John Wolfe, LimnoTech). Since its inception in Fall 2009, we have moved from idea to opportunity development, culminating in a workshop proposal that will (we hope) become an enabler for reframing research questions and solutions in line with value-driven policy designs.

The trend that decisions regarding society's most challenging environmental problems are made with attention to both scientific and economic arguments, with economic criteria playing an ever-larger role, is becoming very apparent. Cost-benefit analysis is now a federally mandated part of most regulatory decisions (e.g., drinking water standards), while economic principles are playing an increasing role in the development of new regulatory schemes (e.g., market- or incentive-based approaches) and many other environmental decisions (e.g., climate change mitigation). Concepts of carbon finance and microfinance, venture investment and project finance, and economic break-even time frames drive decision-making for innovative engineering solutions that address environmental challenges in the developing world, emerging economies and the US, Europe, or Japan. This trend has also been recognized by the National Academies. For example, the recent report on *Grand Challenges for Engineering* either implicitly or explicitly invokes the importance of economics and finance in areas such as Solar Energy, Clean Water, and Urban Infrastructure. The ability of the AEESP community to fully engage in this increasingly broad range of activities will be greatly enhanced by the capacity to incorporate economic principles into its research, the ability to describe research outcomes in economic terms, and educate our students in this framework.

So what could the result of this Initiative look like? Consider the life cycle assessment (LCA) approaches pioneered to address system-level impacts of products and services now thirty-some years ago. Fast-forward, and current NSF panel reviewers may decline a proposal because life cycle impacts were not considered. LCA became the new boundary condition. Given the shift in environmental policy designs, the financial or economic boundary condition, which is a central tenet of sustainability, may similarly influence how we think about environmental problem solving and design.

Until then…your Board of Directors looks forward to your participation in the strategic planning process!

Challenges in Environmental Engineering Education

By JOEL G. BURKEN, MISSOURI S&T

"The pessimist sees difficulty in every opportunity. The optimist sees opportunity in every difficulty."—Winston Churchill

At the 2009 AEESP conference in Iowa City, we held a workshop titled "Changes and Challenges in Environmental Engineering Education: BS vs MS, ABET, BOK, & Sustainability" to address some of the challenges that we face in Environmental Engineering and Science education. These challenges relate to changes and growth in the field that have occurred concurrently and are faced by many institutions to differing degrees, and bringing many people together in a workshop really kicked off a process that is still ongoing and expanding to help improve educational programs in environmental engineering and science internationally.

The changes and challenges we face are in part due to the rapid boom of Environmental Engineering Bachelor of Science degree programs, which have more than doubled in the past decade to over 60 programs. In the meantime, the number of MS students at many programs has decreased, presenting a notable change in the education of many students as they graduate and enter the profession, and "sustainability" has blossomed, creating a new challenge outside the traditional core areas. In addition to this new branch of our field, we see the challenge that carbon and greenhouse gas emissions overall will pose to us not only technologically, but educationally also to prepare students to enter the profession ready to tackle the problems of the 21st century.

At the same time we are looking out at the horizon, we have topics to address now to meet our profession's needs, which are clearly changing on a constant basis. The concurrent growth in educational programs and changes in our profession pose challenges to many new programs facing initial Accreditation Board of Engineering and Technology (ABET) accreditation or preparing for reaccreditation. ABET accreditation processes are also rapidly evolving and the recent efforts to establish a Body of Knowledge (BOK) will further alter the accreditation process. The American Academy of Environmental Engineering (AAEE) has developed an initial BOK, which was distributed at the workshop. The topics and presenters at the workshop are listed below.

As part of the outcomes of the workshop, a continued effort to address these challenges as a field and to assist individual programs has been ongoing. We hope to have follow-up meetings built from input and ideas from individuals. As part of this ongoing effort, we plan to establish a dissemination email list and a communications platform for program chairs and coordinators. A full report from the workshop and the AEESP Education Committee is expected later this year. For more information and to be included in the future discussions as a program chair or coordinator, please contact Joel Burken (burken@mst.edu).

Challenges in Environmental Engineering Education—2009 AEESP Workshop

State of the Field of Environmental Engineering— Joel Burken

ABET and BOK—Susan Powers and Mark Fitch

Sustainability in Education—Cliff Davidson and Mike Butkus

AEESP-Sponsored Lectures at Upcoming Conferences

AEESP Lecture at AWWA ACE 2010 Conference

June 20–24, Chicago, Illinois, sponsored by Black & Veatch

Dr. Desmond Lawler, Bob R. Dorsey Professor of Engineering, University of Texas at Austin

Particles: At the Heart of Plant Design and Performance from Conventional Treatment to Desalination

Monday, June 21, 2010, 12:00–12:45 p.m.

AEESP/A&WMA Meet & Greet at A&WMA Annual Conference & Exhibition

June 22–25, Calgary, Alberta

Dr. J. Patrick A. Hettiaratchi, Center for Environmental Engineering Research and Education (CEERE), University of Calgary

The Biocell Approach to Recover Resources and Energy from Waste

Wednesday, June 23, 2010, 7:00–8: 30 a.m.

Network with colleagues from AEESP at the annual A&WMA/AEESP breakfast meeting. Dr. Hettiaratchi will discuss biocell energy potential and provide an overview of landfills that promote sustainable solid waste management and extend the landfill bioreactor concept to include principles of sustainable development.

AEESP Lectures at Water Environment Federation Technical Exhibition & Conference

October 2–6, 2010, New Orleans, Louisiana

[both talks will be in the Ernest N. Morial Convention Center]

AEESP/WEF Research Lecture, sponsored by Camp, Dresser, & McKee

Dr. Denny Parker, Senior Vice President, Brown & Caldwell

Introduction of New Process Technology into the Wastewater Treatment Sector

Monday, October 4th, 2010, 10:30 a.m.

AEESP/WEF Scientists Lunch, sponsored by Brown & Caldwell

Dr. Alex McCorquodale, Department of Civil & Environmental Engineering, University of New Orleans

Environmental Issues and Coastal Restoration in the Mississippi Delta

Monday, October 4th, 11:30 a.m.–1:30 p.m.

This presentation will review the research related to the environmental problems associated with introducing Mississippi River water into the coastal wetlands with emphasis on the Pontchartrain and Barataria estuaries.

AEESP Meet & Greet and Annual Meeting, Sponsored by Carollo Engineering

Monday, October 4th, 5:00–7:00 p.m.

Hilton New Orleans Riverside, Belle Chasse Room, 3rd level.

Dzombak Selected as 2010–2011 AEESP Distinguished Lecturer

Dave Dzombak

The AEESP Lectures committee is delighted to announce that Dave Dzombak will be the 2010–2011 AEESP Distinguished Lecturer. Dr. Dzombak is the Walter J. Blenko Sr. Professor of Environmental Engineering in the Department of Civil and Environmental Engineering at Carnegie Mellon University and director of the Steinbrenner Institute for Environmental Education and Research.

Dzombak received a B.A. in Mathematics from Saint Vincent College, B.S. and M.S. degrees in Civil Engineering from Carnegie Mellon University, and a Ph.D. in Civil Engineering from the Massachusetts Institute of Technology. He is a registered Professional Engineer in the Commonwealth of Pennsylvania, a Diplomate of the American Academy of Environmental Engineers, a Fellow of the American Society of Civil Engineers, and a member of the National Academy of Engineering. His research interests include water chemistry, the fate and transport of chemicals in surface and subsurface waters, wastewater treatment and reuse, contaminated soil and sediment remediation, abandoned mine drainage remediation, and geologic sequestration of carbon dioxide. Dr. Dzombak will offer the following lectures during his tours:

- **Need and Challenge of Alternative Water Sources for Use in Electric Power Production:** Thermoelectric power generation accounts for about as much freshwater withdrawal as agricultural irrigation in the U.S., with both at about 40% of total. Meeting the future cooling water demands for electric power production will be difficult in locations with limited freshwater resources, and is already prompting interest in the use of waters of impaired quality, such as treated wastewater, mine drainage, and industrial process wastewater, as alternative sources. This talk will provide an overview of the water-energy challenge facing the U.S. and will examine the need for and challenges of using alternatives to freshwater for power plant cooling.
- **Geologic Sequestration of CO_2: Evaluating and Monitoring Seal Rock Integrity:** The leading technology under development for management of CO_2 separated and captured from large emission sources, such as electric power plants, is carbon capture and geologic sequestration (CCS). Worldwide, only a few large-scale tests of CCS have been conducted. In the US, the DoE has established seven regional partnership programs for large-scale testing of CCS, including evaluations of the rate of leakage from the storage reservoirs. This talk will present an overview of CCS and the challenge of risk assessment in relation to deployment of the technology. Potential mechanisms for leakage from CO_2 storage reservoirs and performance objectives under consideration will be discussed. Results of research on seal rocks overlying saline reservoirs will be presented and the implications for assessment and monitoring of seal rock integrity in CCS will be discussed.

Lecture tour dates will be scheduled during the periods **September 27–November 17, 2010** and **January 19–March 25, 2011**. Institutions that would like to host Dr. Dzombak must send in an application by **May 24, 2010**. Application forms and more lecture details are available at www.aeesp.org or from Dr. Sarina Ergas (sergas@eng.usf.edu) at the University of South Florida.

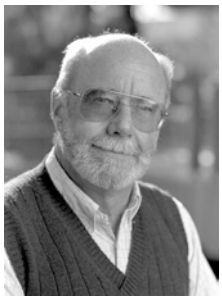
Foundation to Endow Two Ph.D. Dissertation Awards

Submitted by RICHARD G. LUTHY (STANFORD UNIVERSITY), CHAIR, AEESP FOUNDATION BOARD

The AEESP Foundation Board is raising funds to endow our various awards. In the next year or so, the Board anticipates that two Ph.D. dissertation awards will be endowed, one named for CH2M-Hill and one for Professor Paul V. Roberts (see full description below). In time, there may be other endowed dissertation awards. We are pleased that the fundraising for the Roberts dissertation award has reached the matching stage, and we encourage the AEESP membership to contribute to the award's endowment. Your contribution will be matched "two-for-one" by the Association and thus your contribution has double impact!

The *Paul V. Roberts–AEESP Outstanding Dissertation Award* will reward a rigorous and innovative doctoral thesis that advances the science and practice of water quality engineering for either engineered or natural systems. Special consideration will be given to physical-chemical process research and/or research that especially supports underserved communities, environmental awareness, or sustainable solutions.

A steering committee worked with Paul's family and the Association of Environmental Engineering and Science Professors (AEESP) Foundation to establish an endowment fund for the award. This fund is currently at more than two-thirds of its required amount of $75,000. AEESP has agreed to match the remainder of the contributions to help reach the $75,000 goal; thus, we are less than $12,500 away from finalizing the award. The final fund will support an annual prize that can honor and reward a doctoral student at a consistent level with all other AEESP Outstanding Dissertation Awards, while also providing similar levels of support to promote the travel of both the student and advisor to the AEESP conference where the award will be given. AEESP is joining with our steering committee to solicit general contributions to this endowment fund—AEESP members will receive a solicitation to contribute in the near future.



Paul V. Roberts

Paul Roberts (1938–2006) was among the very best and most admired environmental engineers of his generation. He brought together interdisciplinary teams of hydrogeologists, chemists, microbiologists, and engineers, and showed the value of interactions between laboratory studies, field studies, and theory for the solution of complex environmental problems. Paul was an inspiration to his students and faculty colleagues. Those who had the good fortune to spend time in Stanford's Environmental Engineering and Science Program (SEEP) with Paul know that he was a major catalyst behind the program's exceptional teaching and research atmosphere and *esprit de corps*. For his students, Paul provided not only the tools, motivation, and inspiration for making rigorous and innovative contributions to environmental engineering and science, but also a poignant example of how one can balance professional excellence with a full and rich personal life. He was an advocate of environmental awareness and green engineering long before it was commonly popular, and he was a strong supporter of environmental justice and engineers playing a role in helping to meet the needs of underdeveloped communities. Paul was a role model for many, and was often heard reminding his students and others to "do good while doing well."

Activity of the AEESP Diversity and Demographics Committee

Submitted by LEE CLAPP (TEXAS A&M-KINGSVILLE)

The Diversity and Demographics Committee of the AEESP is developing an online brochure and recruitment video for recruiting a diverse student body to be trained as the next generation of environmental engineers and scientists. The material is designed for college-bound high school students and community college students seeking further educational opportunities.

The video will provide students with a broad introduction to the environmental engineering and science professions and will describe the impact that environmental engineers and scientists have on people and the planet. Students will be provided with a vivid picture of how practicing as an environmental engineer or scientist can contribute to a new generation of environmentally sustainable infrastructure, solutions for renewable energy, maintenance and expansion of healthy natural ecological systems, and aiding people in need of clean water and sanitation around the globe. The video will also provide concrete examples of the skills needed to become an environmental engineer or scientist and avenues to seek educational institutions which offer degrees in environmental engineering and science.

To illustrate the impact of our profession and generate student excitement about environmental engineering and science, the video will also describe employment opportunities, highlight diverse projects that require the skills and effort of environmental engineers and scientists, and outline the vast challenges that environmental engineers and scientists face as world population increases and environmental challenges such as climate change and limited fossil fuel supplies emerge. Members of the Diversity and Demographics Committee include Alok Bhandari (Iowa State), Lee Clapp (Texas A&M-Kingsville), Donna Fennell (Rutgers), Kimberly Jones (Howard), and Kurt Paterson (Michigan Tech).

AEESP Visits Washington

On April 28 and 29, 2010, AEESP visited Washington, DC to advance the mission of the organization. Joel Burken, Steve Dentel and Allen Davis visited officials at the Environmental Protection Agency and the National Science Foundation to discuss collaborations and future opportunities. Our EPA meeting was with Audrey Levine (a former AEESP member), National Program Director for Drinking Water in the Office of Research and Development. This was primarily an introductory meeting to explore ways in which the organizations can work together. At NSF, we met with Environmental Engineering Program Director Paul Bishop and CBET Division Director John J. McGrath. Future funding directions and opportunities were the main topics of discussion.

AEESP President Peter Adriaens joined the other three on the following day for visits to U.S Congress as part of the official Congressional Visits Day. A number of issues were discussed with staff members, including increasing funding for NSF and EPA extramural research. The importance of environmental engineering research and the associated education of technically competent students were highlighted as being beneficial to the Nation. Other issues were discussed based on the interests of the staff, including energy and water, urban water issues, and better coordination of federal support for water and environmental research.

AEESP's delegation to Washington, D.C. (from left: Joel Burken, Steve Dentel, Peter Adriaens, Allen Davis) in front of the capitol.

Senate offices visited were those representing Delaware (Carper and Kaufman). Michigan (Levin and Stabenow), Missouri (Bond and McCaskill), and Maryland (Cardin and Mikulski). House offices included House Majority Leader Hoyer (5th MD) and Representatives Castle (DE at large), Cummings (7th MD), Dingell (15th MI), and Emerson (8th MO).

Newsletter policies

AEESP welcomes AEESP members to submit items such as letters to the editor, letters to the president, news, ads, and announcements to the Newsletter. The decision to publish is subject to the discretion of the Editor and the AEESP Board of Directors. All submissions for the AEESP Newsletter should be sent electronically as an attached file to the Newsletter editor, Joseph Ryan.

Submissions deadline: The AEESP Newsletter is published three times a year in January, May, and September. The deadline for Newsletter submissions is one month prior to the publication date (e.g., the deadline for the September Newsletter is August 1). Please keep in mind when submitting items with deadline dates that members receive issues four to six weeks after the submissions deadline.

Individual member advertising policy: Any advertisement, including faculty, post-doc, or student ads, or other types of announcements submitted by an AEESP individual member, will be free for the first 250 words (approximately 1/4 page) and then charged at $1 per word for additional content, if formatted to fit in a column. Non-members will be charged at the per word rate for any size column-formatted ad. Full page formatted advertisements will be charged at $500 for members and $1,000 for non-members. All formatted full page ads will be accompanied by a free web ad. Programs will be limited to one full page of ads and/or announcements per issue.

Photo submissions: Photo submissions to the AEESP Newsletter are encouraged. Please submit your photos electronically in JPG format at the highest dimension for downsizing to print resolution (preferably less than 750 KB). Also, please include captions with names, locations, and dates.

IN MEMORIAM

W. Wesley Eckenfelder, Jr., D.Sc., P.E., D.E.E., 1927–2010

Submitted by JOEL BURKEN, MISSOURI S&T, AND AARNE VESILIND, BUCKNELL UNIVERSITY

Wes Eckenfelder passed away peacefully early in the morning of March 28, 2010. He was 83 years old. Wes was preceded in death by his son, Lawrence, and is survived by his wife, Agnes Elliott Eckenfelder, his daughter, Janice Lariviere, his daughter-in-law, Dora Eckenfelder, and five grandchildren.

Wes Eckenfelder was known internationally as a pioneer in the field of wastewater treatment. He was a professor at four different universities, with his last appointment being Distinguished Professor at Vanderbilt University. He influenced a countless number of engineers and scientists through his many textbooks, journal articles, workshops, and courses. He was the founding principal of several companies, including AWARE, Inc., in Nashville, TN, which was later named Eckenfelder, Inc., in his honor.

Wes Eckenfelder received his undergraduate education in civil engineering at Manhattan College and earned Masters degrees in sanitary engineering from Penn State and in civil engineering from New York University. Manhattan College awarded Wes with an honorary doctorate in 1990, but he never received an earned Ph.D. because the professors at the university where he enrolled did not approve his doctoral research proposal. He wanted to do mathematical modeling of biological systems, and the professors thought that this could not be done. He decided that he did not need the professors and left the university, going on to be one of the first to apply Michealis-Menten kinetics to biological treatment. He used clever graphical techniques to understand and explain the complex biological processes.

Wes had one other attribute that was lacking in many academic types—he could understand and talk to the treatment plant operators who, in the end, had to make the plants work.

Wes had one other attribute that was lacking in many academic types—he could understand and talk to the treatment plant operators who, in the end, had to make the plants work. One example will illustrate this point. At a national meeting, Eckenfelder was presenting a paper about the removal of color in wastewater, and his data were reported using color numbers. During the following question period, he was asked what he meant by color numbers of 2 and 5 by someone unfamiliar with this measurement scale. Instead of putting down the questioner for not knowing about color numbers, he said, "If you buy a scotch and water at the bar, it will have a color number of 2. If you mix a scotch and water at home, it will have a color number of 5." The audience roared in laughter and appreciation. This ability to explain complicated concepts in simple, memorable terms—and often to commiserate with the operators—made him one of the most beloved and respected environmental engineers of his age.

Wes Eckenfelder is enshrined at the Adventure Science Center in Nashville, where he lived since 1970, as one of the "Tennessee Engineers and Builders of the Twentieth Century," and in 2007, the Water Environment Federation created a "Dr. Wesley Eckenfelder Industrial Water Quality Lifetime Achievement Award" in his honor. In 1999, he was named as one of the three "20th Century Pollution Control Pioneers" by *Environmental Protection* magazine along with Rachael Carson, who wrote *Silent Spring*, and Nobel Laureate A. J. P. Martin, who invented the gas chromatograph.

Dr. Eckenfelder was truly one of a kind and a living legend. Professionally active until the end, he spent the last several days of his life outlining a design manual he intended to publish for "Advanced Wastewater Treatment Technologies." He will be greatly missed by his family, friends, and professional colleagues worldwide.

Further remembrances of and tributes to Wes Eckenfelder can be read and added to at www.wwepioneer.com. His autobiography, titled *W. Wesley Eckenfelder—Waste Water Extraordinaire: The Life of an Environmental Pioneer* can be purchased at www.authorhouse.com.

Jorge Abad Now at the University of Pittsburgh

Dr. Jorge D. Abad recently joined the Department of Civil and Environmental Engineering at the University of Pittsburgh.

Dr. Abad received a Ph.D. in Civil and Environmental Engineering from the University of Illinois at Urbana-Champaign. Before going to Pitt, Dr. Abad spent one year as a postdoctoral research associate in the Ven Te Chow Hydrosystems Laboratory at the University of Illinois.

Dr. Abad's research interests are a combination of fundamental and applied topics. Fundamental topics include the mechanics of sediment transport, the high-resolution description of hydrodynamics and morphodynamics in subaerial and submarine meandering channels, the long-term prediction of river morphodynamics, the development of computational fluid dynamics (CFD) models for environmental flows, environmental hydrodynamics, and transport and mixing processes. Applied topics include river restoration, bank protection using in-stream structures, development of geographic information systems (GIS) tools for river management, and the development of CFD models for hydraulic structures (e.g., drop shafts and fish passage/canoe chutes).

Abad's research group seeks to understand the geophysical processes at both the laboratory and field scales. Abad has published in *Water Resources Research, Ocean Engineering, Journal of Hydraulic Engineering, Hydrological Processes,* and the *ASCE Manuals of Practice*. You can learn more about Dr. Abad and his research at www.engr.pitt.edu/civil/facstaff/abad_jorge.html.

AEESP e-Newsletters

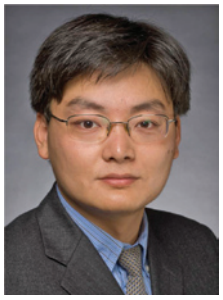
Want to go paperless for the AEESP Newsletter? If you wish to receive only the link for obtaining an electronic copy of the Newsletter, send a brief message to Joanne Fetzner at joanne@aeesp.org and we will remove you from the mailing list beginning with the September 2010 issue.

Francis de los Reyes named TED Fellow

Francis de los Reyes III, Associate Professor of Civil, Construction, and Environmental Engineering at North Carolina State University, was named a 2009 TED Fellow for his research on water and sanitation for developing countries. He attended the TEDIndia conference, "The Future Beckons," in Mysore, India, in November, 2009.

TED is a nonprofit organization devoted to Ideas Worth Spreading. Started as a four-day conference in California 25 years ago, TED has grown to support those world-changing ideas with multiple initiatives. The annual TED Conference invites the world's leading thinkers and doers to speak, and talks are posted on TED.com.

Jason He now at University of Wisconsin-Milwaukee



Dr. Zhen He (Jason) joined the faculty of the Department of Civil Engineering and Mechanics at the University of Wisconsin–Milwaukee (UWM) as an assistant professor in August, 2009.

He received his Ph.D. in 2007 from Washington University in St. Louis, his M.Sc. in 2003 from the Technical University of Denmark, and his B.S. in 2000 from Tongji University in Shanghai, China, all in environmental engineering. Prior to joining UWM, he was a postdoctoral research associate in the Mork Family Department of Chemical Engineering and Materials Science and the Department of Earth Sciences at the University of Southern California.

His research focuses on environmental biotechnology, environmental bio-electrochemistry, and bioenergy production. He is particularly interested in bioelectricity generation using microbial fuel cells (MFCs), biological nutrient removal, sustainable desalination technology, and photosynthetic process. For more information, please see his web page, https://pantherfile.uwm.edu/zhenhe/www/index.htm.

Lupita Montoya now at the University of Colorado at Boulder

The University of Colorado at Boulder is pleased to announce that Lupita D. Montoya, Ph.D., has joined the faculty as Assistant Professor of Environmental Engineering in the Department of Civil, Environmental, and Architectural Engineering and the Mortenson Center in Engineering for Developing Communities. Dr. Montoya received her B.S. from California State University at Northridge and her M.S. and Ph.D. from Stanford University. Dr. Montoya received postdoctoral fellowships to conduct research in Environmental Health at the State University of New York at Albany and the Harvard School of Public Health. Before joining the faculty at the University of Colorado, Dr. Montoya was an engineering faculty member at Rensselaer Polytechnic Institute in Troy, NY. Her research focuses on the intersection of aerosol science, engineering, and health.

Dr. Montoya joins a faculty of 14 in the environmental engineering and air quality engineering programs at Boulder. She will help initiate new efforts in health effects of air pollutants, green building technologies, and engineering for developing communities.

Municipal Landfill Design Calculations: An Entry Level Manual of Practice

ISBN 978-0-692-00678-8
Library of Congress Control Number: 2009912752
Richardson Environmental Solutions and Design, LLC Publisher

This manual consists of 54 mini-chapters, covering a comprehensive range of landfill design topics: anchor trench design, leachate pipe performance, waste settlement, drainage design, slope stability, active gas collection, vegetative plan, and so forth. The manual provides a skeletal framework of state-of-the-art methodologies used to design a modern sanitary landfill. Each methodology presented is based on published information relevant to the respective landfill design component. References are provided at the end of each chapter to allow the users of this manual to complement their understanding and use of the material. Most of the procedures can be solved manually and are well-suited for implementation using a spreadsheet. Example problems are provided within each chapter in skeletal format to illustrate the basic fundamentals of a particular component or aspect described therein. The manual would be suitable as a graduate or undergraduate design text or as a professional desk reference. For a single page excerpt, visit:

www.richardsonenvironmentalsolutions.com

Clinton P. Richardson, Ph.D., P.E.
Associate Professor, Civil and Environmental Engineering
New Mexico Institute of Mining and Technology
Socorro, NM 87823

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David Sabatini Named DaVinci Fellow

David Sabatini, of University of Oklahoma's Department of Civil Engineering and Environmental Science, was named a 2010 DaVinci Fellow by the DaVinci Institute of Oklahoma. The award recognizes faculty who show creativity and innovation in their scholarly activities with an emphasis on the complexity of issue addressed, the fresh perspective and creative approach taken, and the effectiveness and appropriateness of the results.

The DaVinci Institute University recognized David's exceptional teaching portfolio combined with outstanding performance in externally funded research, archival publications, and professional service. They highlighted his 2006 founding of the Water Technologies for Emerging Regions (WaTER) Center to meet the growing need for university-based programs with the personnel and resources to play a key part in international water supply and sanitation through the transfer of appropriate and sustainable technologies. The mission of the WaTER Center is to promote health, education, development, and peace by solving drinking water and sanitation challenges for impoverished regions in the U.S. and developing countries by sponsoring innovative teaching, research, service initiatives, and international leadership activities.

The State of Environmental Engineering and Science Funding at NSF

Submitted by Amy Childress, University of Nevado at Reno, former AEESP WATERS network liaison

National Science Foundation funding rates for environmental engineering

It is no secret that the environmental engineering program at the National Science Foundation (NSF) is underfunded. The Chemical, Bioengineering, Environmental, and Transport Systems (CBET) division director and Environmental Engineering program directors have been forthcoming with data that shows the low success rate of environmental engineering proposals submitted to the CBET division. Figure 1 was posted on the NSF website in Fall 2009; it shows the CBET division as having a 17% funding rate—the lowest of all divisions in the Engineering Directorate.

Although 17% is a comparatively lower funding rate, it is a much higher funding rate than normal for CBET. In FY09, the budget was significantly increased due to the American Recovery and Reinvestment Act (ARRA; stimulus package) funds. According to CBET Division Director John McGrath, "The base budget for FY10 is approximately 7.5% larger than FY09. However, since the ARRA budget increased the total FY09 budget by 41% above the FY09 base budget, the total budget for FY10 will be about 24% smaller than the total budget for FY09 (with ARRA funds)." Also for FY10, the current estimate for the number of submitted proposals in the four environmental engineering program areas in CBET is approximately 32% higher than FY09. This combination has produced a lower estimated FY10 funding rate compared to that for FY09. The Environmental Engineering program directors expect funding rates of approximately 8% for unsolicited proposals and 15% for CAREER proposals. These rates are considered more normal funding rates for recent years.

Along comes the WATer and Environmental Research Systems (WATERS) Network

Because of these low funding rates, or perhaps because of its grassroots genesis, the WATERS Network (formerly CLEANER) gained traction quickly in the environmental engineering and science community. Some saw it as the only way to address the nationwide water resource and management challenges that we face as a society and others saw it as a relatively quick infusion of funds into a program that desperately needed it. Either way, over the past eight years, as the scope of WATERS expanded, more researchers became active and engaged in this initiative.

Where is WATERS today?

On March 19th, a letter was sent from the NSF Assistant Directors of Engineering, Geosciences, and Social, Behavioral, and Economic Sciences to inform the WATERS Network PI, Jeff Dozier, that NSF decided to not move forward with the WATERS Network as a Major Research Equipment and Facilities Construction (MREFC) project. Essentially, the Assistant Directors were not convinced of the necessity to construct the entire infrastructure of a national network to answer the scientific questions posed by WATERS.

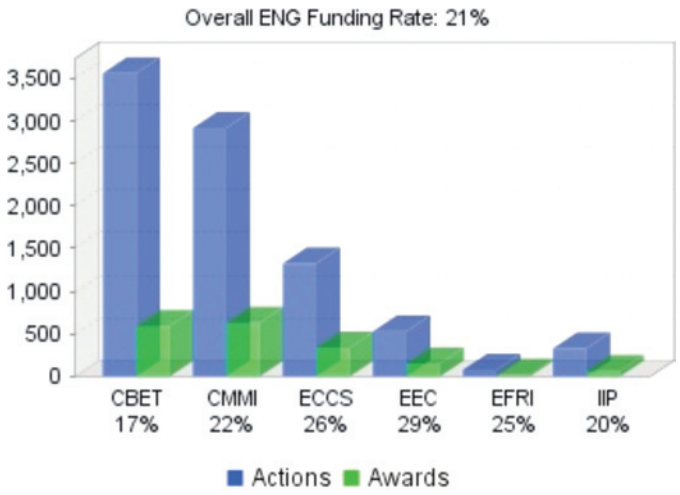

Figure 1. *FY09 funding rates for Engineering research grants (from NSF website, accessed 10/23/09). Note: These funding rates represent much higher funding rates than normal due to ARRA funds.*

Fortunately, the water funding story does not end here. Four months ago, and partially in an effort to thwart the blow that would be felt by those in the environmental engineering and science, geosciences, and social, behavioral and economic sciences communities, a new initiative was released, the Water Sustainability and Climate (WSC) Program. According to CBET Program Manager Paul Bishop, "this new solicitation will be our answer for the time being to address the vital need for more research in the area of water sustainability. It doesn't totally cover the topics that WATERS was addressing, but it does keep the research effort moving forward." CBET Program Manager Bruce Hamilton adds, "We hope to reissue the WSC solicitation annually for at least 5 years. We hope that funds in later years will be larger than the first year, but it will be subject to availability of funds. There may be some revision of future versions of the WSC solicitation, after we see how the first competition goes."

The silver lining?

When asked to speculate on the possible impact of the WSC Program compared to that of WATERS Network, Bishop states, "Since the WSC Program is a purely research initiative and not just a major facility construction and equipment purchase program, it actually may do more for the general research community. Also, the research

continued on page 12

The State of Funding at NSF, *continued from page 11*

associated with WATERS would not have begun until after construction, probably 10 years or more away. The WSC allows the water sustainability research to begin immediately."

Given the low rate of CBET funding in recent years, the WSC Program should, at a minimum, provide an increase in environmental engineering and science funding. Whether this increase will directly translate to an increased *funding rate* for environmental engineering and science researchers remains to be seen. Perhaps more importantly, the initiation of the WSC Program provides clear indication that NSF recognizes the relevance and urgency to support research directed toward ensuring an adequate supply and quality of water. So it seems that at this time, the best response our community can have is to maintain high morale and continue submitting competitive proposals showing innovative ideas, unique applications, and broad impact.

Annual Anaerobic Treatment Short Course

The annual short course titled "Anaerobic Treatment of High-Strength Industrial Waste" will be held September 15–16, 2010, at Marquette University in Milwaukee, Wisconsin.

Speakers will include Drs. Rene Moletta (French National Institute for Agricultural Research), Daniel Zitomer (Marquette University), and Dennis Totzke (Applied Technologies, Inc.).

Information will be presented regarding sustainability and greenhouse gas emission avoidance, biogas utilization, anaerobic treatment fundamentals, operating strategies, design/construction/start-up guidelines, and case studies of operating anaerobic treatment systems.

For more information and registration, see the course registration website (www.marquette.edu/ANT) or email Daniel Zitomer (daniel.zitomer@mu.edu). A limited number of fellowships are available to cover registration costs for graduate students studying anaerobic biotechnology. Students interested in applying should contact Dr. Zitomer.

NSF Funds University of Wisconsin-Milwaukee-Led, Industry-Driven Freshwater Research

Submitted by ERIK CHRISTENSEN, UNIVERSITY OF WISCONSIN-MILWAUKEE

The National Science Foundation has awarded the University of Wisconsin–Milwaukee (UWM) and Marquette University a total of $675,000 over five years to form an Industry and University Cooperative Research Center (I/UCRC) in Milwaukee centered on advancing freshwater research and spurring economic growth.

The I/UCRC combines the individual areas of expertise at UWM and Marquette and links those resources with six water-related industries in the area, with the goal of developing industry-chosen projects involving water equipment, policy, and technology.

Directed by UWM Engineering Professor Erik Christensen and Marquette Engineering Associate Dean Michael Switzenbaum, the new Milwaukee I/UCRC is one of about 55 such NSF centers in the country and one of only two that focus on freshwater issues.

The Milwaukee 7 Water Council, an economic development organization, worked with the universities to identify member industries, which include A.O. Smith Corporation, Badger Meter Inc., Pentair Inc., Baker Manufacturing Company LLC, Wisconsin Water Research Corp., and the Milwaukee Metropolitan Sewerage District. Member companies, each of which contributed $50,000 for the first year, will choose the first research projects in May, but faculty from both universities have already submitted suggestions.

Among the ideas from UWM is development of a microbial fuel cell that generates energy while simultaneously purifying wastewater. It is one of numerous ecological and engineering research projects under way in UWM's newly minted graduate-level School of Freshwater Sciences.

Last year, U.S. Sen. Herb Kohl endorsed the grant application and secured $550,000 in federal funding to support other aspects of the partnership through the Great Lakes WATER Institute.

School's in Session: Civil Engineers Get Involved in Fishy Business

submitted by KAUSER JAHAN, ROWAN UNIVERSITY

What do aquariums have to do with environmental engineering? A lot!!

An aquarium is an exquisite combination of interacting systems which can be analyzed using multidisciplinary engineering and scientific principles. The National Academy of Engineering indicates that "systems" have become the organizing principle for the way that engineering is viewed and engineering design is accomplished, and ABET degree accreditation criteria reinforce this.

Children typically have personal aquaria for their pet fishes and visit some large aquaria as part of a school field trip or a family outing. While these activities apparently raise the knowledge base in terms of nature and the environment, children seldom make a connection to the engineering principles playing out in the maintenance of a commercial or personal aquarium. Therefore, Rowan University's Civil and Environmental Engineering Program is leading an NSF-funded initiative to bring engineering concepts to the Adventure Aquarium in collaboration with the New Jersey Academy of Aquatic Sciences and Cumberland County College in New Jersey.

Starting from materials, water quality, and alternate energy and going to structural design of shark tunnels, this project brings alive the relevance of engineering to K–12 educators and students. The aquarium theme is also used to investigate ethical, social, and environmental issues through classroom and homework activities. These additional topics bring tremendous strength to the theme as engineers and scientists of the future must have a fundamental understanding of their role in the design and analysis of complex interacting systems, as well as the relevance of ethical and social issues.

American Water Works Association
The Authoritative Resource on Safe Water®

AWWA Announces Second Edition of *The Water Dictionary*

The American Water Works Association (AWWA) has announced the publication of the second edition of *The Water Dictionary.* This essential desk reference has been newly updated and expanded, providing standardized definitions for more than 15,000 water- and wastewater-related words, phrases, acronyms, chemicals, microorganisms, units of measure, calculations and formulas, and more.

The Water Dictionary is available online at www.awwa.org/bookstore, www.amazon.com, and http://www.bn.com.

The Water Dictionary: A Comprehensive Reference of Water Terminology, 2nd Edition
Nancy E. McTigue, Editor, and James M. Symons, Editor Emeritus
ISBN: 978-1-58321-741-2; Catalog No. 10070
AWWA members: **$199**; Retail: **$299**

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Students I Have Known and What They Have Taught Me (Part III)

Submitted by P. Aarne Vesilind, Bucknell University

Here are some more memorable students.

Matt

One of my fellow faculty had arranged for credit to be given for a graduate course that never met and for which no work was required without the knowledge of the rest of the faculty. One would think that this would have been considered Nirvana for graduate students struggling to complete their research, but one graduate student enrolled in the course objected.

"I am disappointed and upset," said Matt. "I want to get a good education, and instead, I am just getting a degree."

I investigated and found that Matt's complaint was accurate. I got the course dropped and the students back into legitimate classes, but damage had been done. Were it not for Matt being willing to complain to me, this scam might have gone on for years.

I learned from Matt that most students are not in school to get a piece of paper, but rather to learn things, and if the learning is corrupted, they get upset. A bad teacher does not become acceptable to students even if the teacher gives everyone high passing grades, and students judge an educational program not by what degree they get but by what they learn.

Jennifer

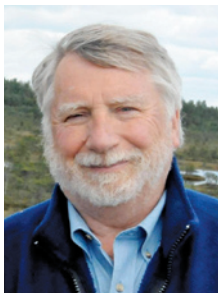
In engineering, the arguments underlying the derivation of equations are sometimes fuzzy. There are steps that are not obvious, and often at these junctions some assumptions are made that have to be reconsidered when the development is complete. But during the derivation, I often barged ahead and worried about such niceties later.

This always worked for me—except when Jennifer was in my class. She had an uncanny ability to sniff out those steps that were not on firm ground. I remember a class in process analysis when we were deriving the Smolokofsky equation, a long and complicated equation that had several steps at which I was tempted to say "and magic happens," but I tried my best to present the arguments as I understood them. As I approached one of these abysses, I could see Jennifer's hand slowly rise. I knew I was in trouble.

"I don't see how you got to that step," she would ask innocently.

Sometimes I would say "I don't rightly know that either. Let's see if we can make some sense out of it." Or I would ask her to wait until the derivation was finished to see if it made more sense. What Jennifer taught me was that a weak link can undermine understanding of the entire process and that I should not wave my hands and pretend that I understood the derivation.

More importantly, Jennifer taught me that it is not the end of the world if I do not understand something and the students find out. University life should be a continuous learning process, and learning should be shared by the faculty and the students.



P. Aarne Vesilind

Bill

Bill was a graduate student who was doing a master's thesis on a new way of expressing the efficiency of a materials separation. We discussed this problem at length, but we could not come up with much. One morning, I was sitting at my desk when the office door opened without a knock and Bill burst in.

"I've got it!" he exclaimed. "I was in the shower this morning and it came to me. I know how to express the efficiency!" Indeed, he had come up with something clever that solved the problem, and Bill's equation now appears in many textbooks.

Bill taught me that scholarly thinking is not an 8-to-5 job. Great ideas come at the most unexpected moments. He also reminded me about the excitement of discovery that should accompany research. A few cries of "Eureka!" go a long way in making scholarly work rewarding.

Drew

Learning to be an engineer is hard work, and not everyone succeeds. Often students will drop out of engineering to pursue less demanding majors, and sometimes they flourish outside of engineering. But it is always a downer to have a student who you think would be a good engineer come to your office and say that they have decided to drop out. One such person was Drew.

"I don't think I can do engineering. I think I want to transfer out," he said.

"What do you want to do instead?" I inquired.

"Oh, I don't know. But I just don't think engineering is for me."

At that point, I got irritated, much to Drew's discomfort. I told him that I didn't want to hear him talk about getting *out* of things, but that I would be most pleased to hear him talk about getting *into* things. I told him that I wanted him to come back and tell me that some field of study is so interesting and exciting that he just had to do that, and since he could not do both that and engineering, that he had to leave engineering. I kicked him out of the office and told him to come back when he had a new love. I told him that I would then gladly sign his transfer form.

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The Future of Engineering Education

Holistic Engineering Education: Beyond Technology
D. Grasso and M.B. Burkins (eds.)
Springer Science + Business Media, New York, 2010

Reviewed by AMY ZANDER, CLARKSON UNIVERSITY

Engineering challenges of our times have become less dependent on technical expertise and more multidimensional. Many of these complex and "grand" challenges, as identified by the National Academy of Engineering, have been considered to be the purview of environmental engineers and scientists. These include managing the nitrogen cycle, providing access to clean water, developing carbon sequestration methods, and restoring and improving urban infrastructure. These broad challenges require a broader, holistic approach to engineering design instead of deeper specialization in narrower engineering sciences.

Domenico Grasso, Vice President for Research at the University of Vermont and a past president of AEESP, and Melody Brown Burkins, Senior Director of Research and Strategic Initiatives at the University of Vermont, have compiled and edited an important volume on the holistic treatment of engineering education. They have included a collection of esteemed authors who provide their input into the need for and methods of reshaping of education in general and engineering education in particular to meet the challenges of the future of engineering. They argue that engineering education must be placed on a much wider base of knowledge, integrating concepts of practice, social needs, and impacts of engineering decisions. They define "holistic engineers" as engineers who "manage, lead, and understand complex, interdisciplinary systems that bring the power of engineering thought to issues spanning and connecting technology, law, public policy, sustainability, the arts, government, and industry."

In an essay in the volume, *The Missing Basics*, David E. Goldberg, the Co-Director of the Illinois Foundry for Innovation in Engineering Education, discusses the conceptual obstacles to aligning engineering as taught with engineering as practiced. Students prepared in a typical engineering curriculum often bump up against obstacles when presented with their senior capstone design project. Armed

with the engineering science essentials, Goldberg argues, senior design students lack seven important skills, among them: asking questions, decomposing design problems, visualizing solutions and generating ideas, gathering data, and communicating solutions in written and oral form. While the engineering curriculum must continue to provide a full measure of mathematics, science and engineering science, it must also include other modes of thinking important to the practice of engineering.

Discussion in the book also reaches into the factors affecting the pipeline of engineering students. In *K-12 Engineering: The Missing Core Discipline*, Iannous Miaoulis, President and Director of the Museum of Science in Boston, laments the absence in K-12 education of the concept of engineering as a "globally transformative profession" and a "missing core discipline" in the K-12 curriculum. He discusses the etiology and remedies for creating a more rounded and technologically literate populace. In separate essays, Catherine Koshland, Vice Provost at University of California-Berkeley, and Carol Christ, President of Smith College, discuss and emphasize the value of a liberal education to engineering practice. Finally, the book discusses the need for multiple pathways into engineering, so the decision to study engineering need not be made in high school.

In addition to making a strong case for change in engineering education, the essays provide assistance in implementation of change. In *Engineers of Tomorrow: Holistic-Thinking System Engineers*, Charla K. Wise, a vice-president at Lockheed Martin, provides a number of recommendations for implementation of change at a national level and in the curriculum.

Many other vital essays and authors help to move ideas forward for production of holistic engineers in the future. The essays are engaging and informative. Grasso and Burkin have compiled a compelling read, with ideas that are important (the editors would say imperative) to incorporate into the engineering curriculum of the near future.

Students I Have Known, *continued from page 12*

He never came back. He muddled through the first couple of years of engineering, and then began to see the relevance of what he was doing, and finally graduated with his class. He was a Navy ROTC cadet and went directly into the service, where he did very well. Some years ago I got an e-mail from Drew in which he remembered this conversation and told me how grateful he was that I did not sign his transfer.

I still believe that one has to get into things, and not out of things. Life is too short to try to get out of doing something.

Oregon State University Searching for Head of School of Chemical, Biological, and Environmental Engineering

The nationally recognized Oregon State University College of Engineering seeks a Head for its School of Chemical, Biological, and Environmental Engineering (CBEE).

The School of CBEE in Corvallis, Oregon, is a unique and innovative combination of disciplines. It develops work-ready engineers, performs high-impact research, and partners with industry to apply and commercialize research in process engineering. Historical excellence in undergraduate teaching is reflected in three ABET-accredited degree programs. In research, CBEE faculty collaborate in interdisciplinary research across the university and also play key roles in state, federal, and international efforts. The emphasis on application gives strong ties with industrial partners. The School Head will shape a strategic vision for CBEE and successfully integrate the vision into the teaching, research, and outreach missions of the School. Communication of the vision in partnership with the OSU Foundation will advance fundraising for research and facilities and support faculty and student growth.

The School Head reports to the Dean of Engineering, works with the CBEE advisory board, participates as a member of the College Leadership Team, and will bring his/her research program and expertise to the School. For the complete list of required and preferred qualifications and to apply for the position, visit http://oregonstate.edu/jobs/, Posting #0005419, closing date 5/31/2010.

University of Florida, Environmental Engineering and Science Faculty Positions

The Department of Environmental Engineering Sciences at the University of Florida invites environmental engineers and scientists to apply for tenured and tenure-track faculty positions. Hiring will focus on interdisciplinary challenges in Energy, Health Care and Biotechnology, Sustainable Infrastructure and the Environment, Information Technology, Computational Science and Engineering, and Nano/Micro-Technology.

The Department of Environmental Engineering Sciences has 17 faculty, 160 graduate students, and over 200 undergraduate students. The College has over 250 faculty, over 2,000 graduate students, and over 4,000 undergraduates organized in eleven different departments. It is one of the most comprehensive engineering colleges in the country and ranked 15th among public colleges of engineering in the *US News and World Report*. For more information, please go to: www.eng.ufl.edu or go directly to the application page: http://engnet.ufl.edu/strategicplans/apply .

The University of Florida is an Affirmative Action/Equal Opportunity Employer and women and minorities are encouraged to apply. The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination, with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations and veteran status, as protected under the Vietnam Era Veterans' Readjustment Assistance Act. This commitment applies in all areas to students, Academic Personnel (AP), Technical, Executive, Administrative and Managerial Support (TEAMS) Staff, University Support Personnel System (USPS) Personnel and Other Personnel Services (OPS) Employees. We are particularly interested in hiring underrepresented minorities.

Faculty Position in Environmental Sciences at the University of Puerto Rico

The Environmental Science Program of the University of Puerto Rico at Río Piedras (http://envsci.uprrp.edu/) invites applications from outstanding candidates for a tenure-track faculty position in the following areas: Urban and Regional Air Quality, Water Science and Technology, Coastal Marine Resources or Environmental Modeling, and Spatial Analysis.

Applicants for the position must have a Ph.D. in an appropriate science or engineering discipline. Postdoctoral experience is highly desirable. As a new faculty member in environmental science, the successful candidate will be expected to build and sustain an externally funded research program and direct student research. He/she will also teach undergraduate and graduate courses and contribute service to the university and the community. An interest in conducting interdisciplinary, collaborative, and policy-relevant research relating to the interaction of human and natural systems is also desirable because the program has an IGERT project in this area. Applications will be reviewed starting March 15, 2010, to begin in July 1, 2010, subject to budget approval.

To be considered for this position, candidates must submit an application package electronically (rafaelrios@vmail.uprrp.edu) that contains a detailed curriculum vitae, statement of teaching and research interests, copies of no more than three publications or manuscripts, and the names and contact information for three references.

For further information, candidates may contact Rafael A. Rios, Chairman, Environmental Sciences, at rafaelrios@vmail.uprrp.edu or at (787)-764-0000, ext 4718.

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The United Nations Environment Programme appointed Pittsburgh to be North America's host for World Environment Day in 2010. This event is part of Pittsburgh's answer to the call. Join citizens, students, business owners, watershed groups, and community leaders from across our region and North America to be part of a remarkable eye-opening exploration of ways that Water Matters! The conference is open to the public and is intended for all audiences.

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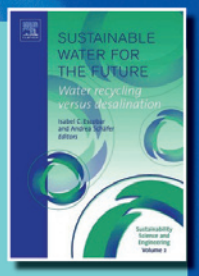

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