

# ISIE News

Volume 5 Issue 4 (December 2005)

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## IE and the Eye of the Storm

### A Disastrous Performance

**Clinton J. Andrews** (cja1@rci.rutgers.edu)

Parents always tell their children who are aspiring artists: "work on the object of your passion but keep your day job." Like many industrial ecologists, I also have kept a day job. Two, in fact. I was trained as an engineer and a planner, and after working as an engineer I now run an academic program in planning. Although I am a member of the industrial ecology community I also lurk on engineering and planning listservs. What I heard discussed in these three communities as Hurricanes Katrina and Rita, and then the Kashmiri earthquake unfolded was telling.

The engineers responded to the immediate problems with ingenuity and alacrity. As the telephone system on the Gulf coast got blown away by Katrina, they quickly helped officials acquire satellite phones to re-establish communications among first responders. They led crews to patch up the electrical and telecommunications distribution networks that had been destroyed. They deployed portable water purification units into the worst hit areas to ensure drinking water availability. They developed makeshift strategies for providing electric power to the large pumps to empty out New Orleans after the floods. And they debated how much higher the levees should be to avoid damage in the next storm. Also, to their credit, they prevailed upon the National Science Foundation to fund emergency research to gather lessons about how various engineered systems failed so that they could rebuild better systems. The listservs were full of ideas for and commentaries on technical fixes.

The planners viewed these events completely differently. Their first concern was for the ripped social fabric. They set up websites to help friends and families find one another, they passed on messages from lost colleagues, and they bemoaned the horribly unequal circumstances of rich and poor evacuees. The tech-ier planners responded to a call for help from emergency management officials who needed geographical guidance; they packed up laptop computers with global positioning systems and geographic information systems and went to the Gulf coast to map the disasters. Other planners noted the failure of the region's automobile-dependent transportation systems during the evacuations. But the main themes on the listservs had to do with whether and how damaged communities like New Orleans should rebuild, and if so, who should be involved and where rebuilding should be allowed. To their credit, they set up volunteer charrettes (intensive design workshops) to help residents envision what future Gulf coast communities could look like, and they critically evaluated the relative merits of the somewhat inappropriately named "Dutch model" of hardening the coasts versus the "English model" of preserving the wetland buffers. The planners' listservs were full of ideas for and commentaries on getting the underlying social, political, and infrastructural conditions right.

Meanwhile, the industrial ecology listservs were silent. No one had much to say about this string of natural disasters. Why not? Perhaps our group of systems thinkers operates at too abstract a level and can't connect to on-the-ground problem solving. Perhaps we take such a long-term view that we have nothing to say about events in the

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International Society for Industrial Ecology

205 Prospect Street, New Haven, CT 06511-2189 USA

## What's New In ISIE?

### New Logo



ISIE has a new logo that will appear on the website, stationery, and on the next volume of **ISIE News**. The triangles symbolize the four elements, air, fire, earth and water. The Society's name reflects our efforts to find the appropriate relationship for human society with these elements.

### Elections

Elections for ISIE leadership are underway and it is time to thank the outgoing members of the Council and the Nominating Committee:

Clinton Andrews  
René Kleijn  
Anthony Chiu  
Raymond Côté

Their dedication and hard work have contributed greatly to ISIE's success.

We also thank those individuals who were nominated and agreed to appear on the latest ballot.

#### Candidates for Council

Anthony Chiu  
Edgar Hertwich  
Rene van Berkel  
Shi Lei  
Valerie Thomas  
Ramesh Ramaswamy

#### Candidates for Nominating Committee

Stefan Anderberg  
Tracy Casavant  
Paulo Ferrao  
Jiansu Mao  
Olivier Jolliet  
Somporn Kamolsiripichaiporn

If you have not yet cast your vote, go to the ISIE website to do so. The March **ISIE News** will report election results.

<http://www.is4ie.org>

### ISIE Survey

Many thanks to all members and former members who completed the ISIE survey. Your feedback is very valuable to the ISIE leadership and staff as we strive to build a stronger society. Any current or former member who has not completed the survey, but would like to, should contact the ISIE office ([is4ie@yale.edu](mailto:is4ie@yale.edu)) by December 15th to receive a copy of the survey form. Results will be published in the next issue of **ISIE News**.

### Gordon Research Conference

Chair Valerie Thomas and Vice-chair Faye Duchin are refining the plans for the 2006 industrial ecology Gordon Research Conference. Queens College, Oxford will be the site for the 6-11 August meeting. Session topics include, Energy, Thermodynamics, Consumption, Infrastructure, and MFA. For more information see:  
<http://www.grc.org/programs/2006/indust.htm>

### ISIE 2007

It is not too early to be thinking about the next ISIE conference. We will convene in Toronto, 17-20 June 2007. The Department of Civil Engineering at University of Toronto is hosting. The conference chairs are Chris Kennedy, University of Toronto; Shi Lei, Tsinghua University; and Helga Weisz, Klagenfurt University. The conference website will be up in early 2006 and continue to watch **ISIE News** for updates.

## President's Corner

### Sustainable Engineering

**Brad Allenby** (Braden.Allenby@asu.edu)

The development of industrial ecology and similar multidisciplinary fields such as ecological economics are not just intellectually valuable journeys in themselves, but also valuable for the light they cast on the processes of social learning and cultural evolution. An interesting part of this learning is observing the responses of different disciplines and professions to the challenges these new areas of study raise.

Engineering in particular has been a natural disciplinary ally to industrial ecology. Many industrial ecologists are trained as engineers, and the early history of industrial ecology was centered in firms that made things, especially automobiles and electronics items. Perhaps the first industrial ecology methodologies were Design for Environment (DFE), with a focus on electronics, and LCA, with a focus on chemical products and chemical engineering. Conceptually, of course, this makes a lot of sense: technology is among other things the working interface between human systems such as culture and economics, the built world of artifacts and urban systems, and the natural world of carbon and nitrogen cycles, the biosphere, and atmospheric and oceanic systems. Events such as flooding, earthquakes, and natural disasters tend to reaffirm this linkage, sometimes through the failure of engineered structures, which may have been designed under financial or other constraints, or constructed in corrupt societies, that made failure under extreme conditions likely. Thus it is not surprising that there is continuing interest in the idea of "sustainable engineering."

As noted in previous issues of **ISIE News**, there are several new research projects looking specifically at how and where sustainable engineering is cur-

rently taught, and aimed at creating more useful curricular material (Society members are encouraged to participate if they so desire). But even as such projects move forward, one must be careful not to overlook the reoccurring problem of definition: what is "sustainable" engineering compared to the alternatives? How does one recognize "sustainable" engineering – is it unique courses? Using industrial ecology modules in existing courses? All of the above? Or, perhaps, since engineering and industrial activity tends to change the status quo, none of the above?

These, of course, are questions that could engage industrial ecologists for a number of nights at the local pub. But a few conceptual observations are of interest. First, engineering must reject the most obvious implication of the term "sustainability": temporal stability. If the muscle cars of the 1960's had been engineered to last for decades, it would have been a major environmental problem. Tech-

***Technology is not just artifacts, but the integrated science and technology competency of a society and, these days, global culture.***

nology, after all, reflects its cultural context and as environmental and social concerns evolve, so does the definition of "good" design. Moreover, all technologies tend to exhibit learning curves, and in general that means they become more efficient over time – less energy, less material and less environmental impact per unit quality of life. Second, technology is not just artifacts, but the integrated science and technology competency of a society and, these days, global culture. Thus, no article can be evaluated without understanding its economic and cultural role, and for any reasonably complex technology, that is beyond our current state of the art. For example, I can understand

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## High Praise for JIE

**Reid Lifset** (reid.lifset@yale.edu)

A recent article in *Business, Strategy and the Environment* ranked the Journal of Industrial Ecology (JIE) first of all the journals dedicated to publishing in the field known as Organizations and Natural Environment (ONE). The article assesses the quality of the academic, practitioner, general management, and specialty journals that publish articles in the environmental strategy and management field. The evaluators were organizational and management scholars in North America.

The article also looked at management journals more broadly—not just those focused on business and the environment—and the JIE was also ranked near the top for overall quality out of 25 journals publishing ONE research.

For the text of the full article, see: Cohen, B. 2005. *Journal ratings and footprints: A North American perspective of organizations and the natural environment journal quality*. [Business Strategy and the Environment](http://www3.interscience.wiley.com/cgi-bin/jissue/110431545)  
[www3.interscience.wiley.com/cgi-bin/jissue/110431545](http://www3.interscience.wiley.com/cgi-bin/jissue/110431545)



## New Members Welcome to ISIE

Claire Barlow, United Kingdom

Charlie Bloch, USA

Mike Christian, USA

Yiannis Chrysostomidis, USA

Chris Davis, Netherlands

Cristiano Facanha, USA

Chris France, USA

Ruz Frias, Chile

Marcio Gama, Brazil

Cecilia Haskins, Norway

Darren Heck, Canada

Sara Marks, USA

Eric Roy, USA

Juan Soria, USA

Tristan Wagner, USA

## **Sharing IE Lessons with the Resource Optimization Initiative**

**Ramesh Ramaswamy**

(ramesh.ramaswamy@roi-online.org)

The Resource Optimization Initiative (ROI) is now fully functional. As noted in ISIE News in October 2004, one of the main aims of the ROI is to promote industrial ecology as a planning platform in developing countries. A key component of the ROI website is a searchable database featuring industrial ecology case studies and a list of specialists. The case studies are not restricted only to published papers, but will include ongoing projects. Although the database is primarily aimed at policy makers, it is useful to researchers as well. ISIE

members are invited to enter themselves as specialists into the database and to post case studies synopses. To avoid spam an individual's contact information is not posted in the database, but must be requested through ROI. The ROI is also maintaining a digital library with full documents from case studies, which site users may request and will be released only with author/publisher permission.

To see details of ROI activities, go to:  
<http://www.roi-online.org>



## **China to Double Renewable Energy**

**Kristan Cockerill** (kristanc10@earthlink.net)

Accounts from an international meeting on renewable energy report that China's President, Hu Jintao, made a statement that China is aiming to provide 15% of its energy needs from renewable sources by 2020. The country currently obtains 7% of its energy from non-fossil fuel sources.

A shift from coal, which now provides 70% of China's energy, is being driven by increasing public anger over miners' deaths as well as the environmental and health impacts apparent in all major Chinese cities.

While the shift to non-fossil fuel is good news for air quality, it does raise other environmental concerns as much of the energy may come from damming rivers to produce hydropower.

The Associated Press reported that roughly 1200 participants from 80 countries attended the November meeting to discuss worldwide use of solar, wind, and hydropower to replace coal and oil. Participants noted that worldwide, renewable sources account for about 4% of energy use, or 160 gigawatts. By 2050 estimates are that this production will increase to 1 terawatt, but what the world needs is 20 terawatts of renewable energy production, according to a US energy specialist at the meeting.

Sources:

Olesen, Alexa. *Chinese President Calls Renewable Energy 'A Must' To Battle Pollution, Energy Shortages*. Associated Press. 8 November 2005.

Watts, Jonathan. *China Pledges to Double Reliance on Renewable Energy by 2020*. The Guardian, 8 November 2005.





Participants in the Industrial Ecology and Environment training course September 2005. Photo contributed by A. Chiu.

### **Mahidol University IE Training Course**

**Peter Carden** (frepc@mahidol.ac.th)

The Faculty of Environment and Resource Studies at Mahidol University, Thailand, hosted a three-week training course on Industrial Ecology and Environment in September. The Colombo Plan Secretariat and the Thailand International Development Cooperation Agency sponsored the course. Twenty individuals from 14 countries participated. The course included lectures and site visits to an industrial estate and to factories. A highlight from the course was learning about conditions and opportunities in other countries. These sessions reinforced the fact that each country has unique challenges and advantages in implementing industrial ecology. Discussing challenges and sharing very different experiences provided a great deal of knowledge for everyone.

More details of the course will be posted at <http://www.en.mahidol.ac.th>

### **New IE Dissertations Completed**

Chaturvedi, Ishita. *A Market Research Study on Central and East European Countries for GE Sensitive*, University of Leeds

Hau, Jorge. *Toward Environmentally Conscious Process Systems Engineering Via Joint Thermodynamic Accounting of Industrial and Ecological Systems*, The Ohio State University

Hoekstra, Rutger. *Economic Growth, Material Flows and the Environment: New Applications of Structural Decomposition Analysis and Physical Input-Output Tables*, Statistics Netherlands

Nishioka, Yurika. *Estimating Public Health Costs and Benefits of Energy Demand-side Management: A Life-Cycle Approach*, Harvard School of Public Health

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***Education is not the filling of a  
pail, but the lighting of a fire.***

**—William Butler Yeats**

*More on IE in the Storm*

short run. Perhaps we prefer to observe rather than act. Whatever the reasons, and they may vary from individual to individual, the industrial ecology community has been eerily quiet over the past few months.

I believe that we have much to offer if we choose to engage with the problems of the day. The engineers have been busy helping people adapt to catastrophic change, and the planners have been busy helping to mitigate future hazards. Industrial ecologists have long studied the relative roles of adaptation and mitigation. We could be using these disasters opportunistically to help a short-sighted public understand why fundamental system changes are necessary.

Without sounding like cranks or doomsayers, we could be out in the public eye clarifying the links between profligate consumption and high gasoline prices, between wasteful land use patterns and transportation system dysfunction, and between channelized rivers and land subsidence. We could be recounting the benefits of reducing hazardous materials use to avoid the accumulation of toxins in industrialized flood plains. We could be proposing measured experiments to reduce human effects on global cycles by means of innovations in both the production and use of energy and water. We could be demonstrating the relevance of the systems view.

Remember those early industrial ecology writings about nature as model and nature as context? When nature so clearly reveals herself through natural disasters, industrial ecologists should seize the opportunity and speak.

***Perhaps our group of systems thinkers operates at too abstract a level and can't connect to on-the-ground problem solving.***



## Job Listings

Senior Science Leader, Measuring and Modeling Sustainability, CSIRO Sustainable Ecosystems, Australia

Water/Wastewater Program and Project Manager, Global Water Business Group, Worldwide openings

Research Associate in Sustainable Consumption and Production, Stockholm Environment Institute, UK

Education Director, Pembina Institute, Canada

Ecologist, Lawson Search Recruitment, UK

Facilities Manager, Omega Optical, Inc., USA

Manager, Environmental Initiatives, Warner Bros. Entertainment Inc., USA

Senior Research Engineer, Sustainable Futures Institute, Michigan Technological University, USA

Assistant Professor, San Francisco State University, USA

Research Associate, Department of Botany, Banaras Hindu University, India

*For more information see the ISIE website*

<http://www.is4ie.org>

## Conference and Symposia Reports

### **The Second Industrial Symbiosis Research Symposium**

**Jennifer McFadden**

(Jennifer.Mcfadden@yale.edu)

**Noel Jacobsen** (nbj@ruc.dk)

Sixty-two researchers from seventeen countries convened in Sweden in June 2005 to discuss the state of research in the field of industrial symbiosis. The second Industrial Symbiosis Research Symposium was held just prior to the International Society of Industrial Ecology (ISIE) meeting at KTH in Stockholm. Industrial symbiosis is principally concerned with the cooperatively managing resource flows through networks of businesses as a means of approaching ecologically sustainable industrial activity.

The Symposium's objective was to identify and discuss on-going theoretical and empirical research, as well as current trends, and to continue the dialogue in light of the agenda from the first symposium held at Yale University in 2004. Key issues for discussion included properly defining symbiosis, the most effective means of implementing symbiotic relationships, quantifying benefits, and the role of other disciplines in research and practice.

John Ehrenfeld, Executive Director of the ISIE, gave the opening remarks by challenging his colleagues to address many of the questions surrounding industrial symbiosis. He described a framework that envisions industrial ecosystems as open, non-equilibrium, complex systems. Stefan Anderberg followed these remarks by making a case for increasing the breadth and depth of IS research in Scandinavia.

A two-part panel discussion in the morning gave presenters the opportunity to talk about cutting-edge research being done in industrial symbiosis at universities. Ramesh Ramaswamy moderated Part I, which included Pierre Desrochers' perspective on economic and geographic factors that have led to by-product linkages; Marian Chertow's

discussion of frontiers in industrial symbiosis research, including the importance of analyzing complex industrial ecosystems from different perspectives and on multiple scale.; and Leo Bass' historical view of the evolution of an industrial ecosystem in Rotterdam harbor.

Matthias Ruth moderated Part II. The panel featured Rene van Berkel discussing the issues and opportunities in Australian heavy industrial areas; Geng Yong outlining the potential benefits and barriers to Chinese eco-industrial development; and Allan Johansson talking about how distributed economies can be used as a novel strategy to drive sustainable industrial development.

Graduate students, Weslyne Ashton, Murat Mirata, and Olli Salmi, presented their research, giving participants the opportunity to hear from the next

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### **GreenBuild International**

**Aurora L. Sharrard** (aluscher@cmu.edu)

In November approximately 10,000 building industry students, professionals, and exhibitors converged on Atlanta, Georgia to attend the 2005 GreenBuild International Conference and Expo, which the U.S. Green Building Council (USGBC) hosts annually. The USGBC is the creator and producer of the international Leadership in Energy and Environmental Design (LEED®) green building rating system. This meeting attracted approximately 25% more attendees than last year.

The meeting's learning sessions covered green building essentials; LEED, the "business of green," facility management, green building phases, government, residential issues, visionary concepts, international activities, and specialty topics. New sessions included new research, Greenprints (an Atlanta-area green building standard), green building tools, and exhibitors. Plenary speakers included Ray Anderson, founder of Interface

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*More from The President*

the energy embedded in a modern jet aircraft, but its impact on ecotourism, or on the biological evolution of bacteria as a result of creating a huge potential host linked by transportation networks, is quite a different and more complex matter. The Internet is a structure of purely human design and intent, but no one knows what it actually looks like (there are no accurate maps of the Net), and certainly not what its effect on human cognitive systems may be. Are either of these technologies "sustainable"? Who knows? In fact, history demonstrates that it is impossible to predict the evolutionary path and implications of any but the most trivial technological systems, which is itself an indication that "sustainable" technology is profoundly oxymoronic.

But that doesn't mean the term is inappropriate. First, even if it is understood as exhortatory rather than substantive, it nonetheless serves a useful purpose in encouraging engineers to look beyond the technical and economic to the social and environmental. Second, if by demonstrating how little we know of sustainability it introduces an element of humility into what is often a sanctimonious and self-righteous discourse, it will have served an important purpose. Minds already closed by ideology are poor vehicles for inventing the future. Third, it encourages us to seek to understand the process of technology, and its coupling to integrated human/built/natural systems, with far more sophistication. So long as we do not let the hypothetical best become the enemy of the heuristic good, that also is a desirable path to walk. This world of "sustainable engineering" is far too complex to trust to those who already have the answers, but it is an unfolding wonder to those armed with some of the right questions.

Join the  
**President's Forum**  
Brad wants to hear  
from **you!**

Send retorts, critiques, applause to  
kristanc10@earthlink.net

<http://www.is4ie.org>

*More on the IS Symposium*

participants the opportunity to hear from the next generation of industrial ecology leaders.

In the afternoon, conference participants broke out into groups to discuss one of three topics. The first group, moderated by Jun Bi, conducted a comparative analysis of the ways in which policy and planning effect industrial development in the East vs. the West. Stefan Anderberg moderated the second group in a discussion of the role of social systems in industrial symbiosis. The third group, moderated by Peter Lowitt, looked at the complexity of developing metrics to evaluate the success of IS projects in light of the needs of different stakeholders.

To wrap up the conference, there was a plenary session on research directions for the future, moderated by Suren Erkman, and a discussion of next steps, led by Mikael Backman, Marian Chertow, Peter Laybourn, and Noel Brings Jacobsen. Symposium participants noted that better tools are needed to evaluate the economic and environmental performance of IS. In addition, participants stressed the importance of drawing on the knowledge and tools of other academic disciplines, while maintaining a distinct identity for the field. There were discussions about the need to broaden the scale of research—spatially, temporally, and organizationally—and to incorporate social sustainability issues into discussions that currently focus more on technology. All participants agreed that research is changing to incorporate new tools and approaches, as new discoveries and insights continue to emerge.

The event was sponsored by the Nordic Council of Ministers and organized through IIIIEE at Lund University, Roskilde University and the Norwegian University of Science and Technology, in collaboration with Øresund Environment Academy. A report outlining the outcomes of the Symposium will be produced by Spring 2006.

More on GreenBuild

and author of *The Mid-Course Correction*; Janine Bengus, natural sciences author of *Biomimicry*; Paul Hawken, environmentalist co-author of *Natural Capitalism*, and Duane Elgin, social scientist author of *Voluntary Simplicity: Toward a Way of Life that is Outwardly Simple*. All spoke on the issues of global sustainability and what the green building industry and our society is and should be doing to promote these goals.

The USGBC made an announcement at GreenBuild that it has partnered with eleven different corporations and organizations to begin creating a LEED standard for companies to be able to certify organizations that claim to be sustainable. Accordingly, one of this year's hot GreenBuild topics was life cycle assessment (LCA) and how the USGBC plans to incorporate LCA into LEED 3.0.

The fifth annual GreenBuild conference will be in Denver, Colorado, in November 2006. A summary of this year's conference is at: <http://www.greenbuildexpo.org>.



## **IE Makes World Book**

Thanks to Marian Chertow at Yale University, the World Book Encyclopedia now includes industrial ecology in its section on Environmental Pollution. The passage reads:

Some businesses have learned to work together to reduce their pollution. Waste materials from one industry can be used as a raw material by another industry. For example, a power plant in Kalundborg, Denmark, sells gypsum captured from burning fossil fuels to a nearby wallboard factory. It also sells ash to a cement manufacturer and steam to other nearby factories and homeowners. By sharing materials, industries can reduce pollution and waste while profiting from the exchange of resources. A field of study called industrial ecology explores these and similar opportunities related to reducing the impact on the environment from industrial and economic sources.

<http://www.is4ie.org>

## **SETAC North America Highlights LCA**

**Troy Hawkins** (trh@andrew.cmu.edu)

**Aurora Sharrard** (aluscher@cmu.edu)

**Cortney Higgins** (chiggins@andrew.cmu.edu)

Roughly 2,500 researchers gathered for the 26th Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC) in Baltimore in November. Industry, academia and consulting firms were all represented among conference attendees and presenters.

While the European life cycle assessment (LCA) community has an established history of involvement with SETAC, LCA has only recently emerged as an important theme at SETAC North America's meetings. The conference included three platform sessions explicitly connected to LCA: Building Life Cycle Capacity in the Greening of Buildings and Construction Considerations, LCA and Business Benefits, and Life Cycle Approaches to Water Resources. In addition, there were two poster sessions featuring LCA work. Common themes included improving existing tools and databases, developing new data collection and assessment techniques, clarifying environmentally preferable product definitions, and case studies. Case studies included analyses of buildings and construction, bio-based fuels and products, steel products and recycling, and water systems.

A small number of attendees involved in the UNEP/SETAC Life Cycle Initiative Working Groups (Life Cycle Inventories, Life Cycle Impact Assessment, and Life Cycle Management) met to discuss the progress of each group. The final reports for several of these groups will be completed by May.

More information about this meeting is at <http://www.setac.org/baltimore>.

The next SETAC North America Meeting will be held November 2006, in Montreal. Proposals for sessions can be submitted until January 19, 2006.

## Conference/Exhibition Listings

*Go to the ISIE website to submit your conference information.*

Clean Energy Technology  
8-9 December 2005, Berlin, Germany

EcoDesign 2005: 4th International Symposium on Environmentally Conscious Design and Inverse Manufacturing  
12-14 December 2005, Tokyo, Japan

5th International Electronics Recycling Congress  
18-20 January, 2006, Hamburg, Germany

The Environmentally Sound Technology Showcase at the Global Ministerial Environment Forum  
5-8 February 2006, Dubai, UAE

Industrial Ecology in Germany Symposium 2006  
16-17 February 2006, University of Kaiserslautern

6th International Automobile Recycling Conference  
15-17 March, 2006, Amsterdam, Netherlands

4th World Water Forum  
16-22 March 2006, Mexico City

National Association of Environmental Professionals  
23-26 April 2006, Albuquerque, USA

The 7th China International Environmental Protection Exhibition & Conference 2006  
28-30 April 2006, Shanghai, China

2006 NSTI Nanotechnology Conference and Trade Show  
7-11 May 2006, Boston, USA

2006 International Symposium on Electronics and the Environment  
8-11 May 2006, San Francisco, CA, USA

2006 Greening Rooftops for Sustainable Communities Conference, Awards, and Trade Show  
10-12 May 2006, Boston, USA

Energy, Material and Urban Environment  
18-20 May, 2006, Paris, France

Persuasive06  
18-19 May 2006, Eindhoven, Netherlands  
<http://www.is4ie.org>

Towards the city surface of tomorrow  
8-9 June 2006, Vienna, Austria

2nd International Conference on Quantified Eco-Efficiency Analysis for Sustainability  
28-30 June 2006, Egmond aan Zee, Netherlands

7th World Congress on Computational Mechanics  
16-22 July, 2006, Los Angeles, USA

2006 Gordon Research Conference on Industrial Ecology  
6-11 Aug 2006, Oxford, UK

Less is More: En Route to Zero Energy Buildings  
13-18 August, 2006, Pacific Grove, USA

ORBIT 2006: Biological Waste Management >>>From Global to Local  
13-15 September 2005, Weimar, Germany

BIO Human Resources Conference  
25-27 September, 2005, New York, USA

IHDP - APN International Human Dimensions Workshop  
13-26 October 2006, Chiang Mai, Thailand

Young Scientists' Global Change Conference  
7-8 November 2006, Beijing, China

Global Environmental Change: Regional Challenges  
9-12 November 2006, Beijing, China

Global Environmental Change Open Science Conference  
9-12 Nov 2006, Beijing, China

Material, Minerals, & Metal Ecology '06  
14-15 November 2006, Cape Town, South Africa

2007 International Symposium on Electronics and the Environment  
7-10 May 2007, Orlando, USA

**ISIE 2007**  
**17-20 June 2007, Toronto, Canada**

## **International Society for Industrial Ecology**

The International Society of Industrial Ecology (ISIE) promotes industrial ecology as a way of finding innovative solutions to complicated environmental problems and facilitates communication among scientists, engineers, policy makers, managers and others who are interested in how environmental concerns and economic activities can be better integrated.

### **Officers**

President—Braden Allenby  
President-Elect—Marina Fischer-Kowalski  
Treasurer—Mak Dehejia  
Secretary—Kristan Cockerill

### **Council**

Clint Andrews            Suren Erkman  
Barbara Karn            René Kleijn  
Yuichi Moriguchi        Matthias Ruth

**Student Liaison**—Amy Landis

### **Nominating Committee**

Jun Bi                      Ray Côté  
Marian Chertow        Anthony Chiu  
Ned Gordon            Ester van der Voet

**Executive Director**—John Ehrenfeld

**Editor**, *Journal of Industrial Ecology*—Reid Lifset

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## **ISIE News Schedule**

<u>Publication Date</u>	<u>Submission Deadline</u>
March 2006 v6 n1	17 February 2006

Send submissions to the appropriate editor.

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