

Industrial Symbiosis Eco-Industrial Development Section Update
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International Society for Industrial Ecology
Peter Lowitt, FAICP

This update service is provided by the Industrial Symbiosis Eco-Industrial Development Section of the International Society for Industrial Ecology. We welcome your announcements, call for papers and announcements of academic publications, corrections, insights and feedback.

The Center for Industrial Ecology at Yale University's School of Forestry and Environmental Studies and the Section are co-sponsoring the 7th Annual Industrial Symbiosis Research Symposium entitled **Industrial Symbiosis -CONTRIBUTING TO CO-BENEFIT CITIES AND REGIONS-Kawasaki, JAPAN, November 5-6, 2010**. The event is held in cooperation with Tsinghua University and the Chinese Academy of Sciences in China, Ulsan University in Korea, and the National Institute for Environmental Studies of Japan. The event is being held in Kawasaki, Japan on the Friday and Saturday prior to the beginning of the ISIE Asia Pacific Conference in Tokyo and the MFA-ConAccount ISIE Section meeting immediately following that event. Kawasaki City, known as an industrial frontier in the Tokyo Metropolitan Region, has experienced an on-going transition toward an environmentally friendly industrial city with industrial symbiosis due to the need in urban management for reducing environmental impact and promoting sustainable development and a low carbon society. Kawasaki Eco-Town is also identified as one of the frontier eco-towns or Japanese EIDs. The Symposium will begin from the reception party on November 4th (Thu.) and end on November 6th (Sat.), 2010. Professor Chertow of Yale and Mr. Lowitt wish to thank Professor Fujita and his team for agreeing to host the event for the section and for their work in pulling the program together. See the IS4IE.org web site for more details. A separate announcement will be sent to the email list with more details on this outstanding event.

Journal of Industrial Ecology forthcoming issue focus on Industrial Symbiosis call for papers.

Industrial Symbiosis

Research in and development of industrial symbiosis has been accelerating around the world. This special issue aims to compile and disseminate state of the art research, especially that which links empirical research with theory building for industrial symbiosis.

Submission deadline: **30 November 2010**

For full text of the call for papers, see < <http://www.yale.edu/jie/CFPs/cfp-industrialsymbiosis.html>>

Conferences, workshops, courses and other events

Publications and presentations of interest:

- “Research on the Stability of Eco-Industry Chains” by Jingfu Guo & Wenzhi Cui School of Economy & Management, Dalian Nationalities University, Dalian 116600, China. E-mail: drguo@dlnu.edu.cn www.ccsenet.org/ijbm International Journal of Business and Management Vol. 5, No. 11; November 2010.
- “Ecologically-based approaches to evaluate the sustainability of industrial systems” by Audrey L. Mayer. Faculty of Biosciences, Environmental Science and Policy, University of Helsinki, PO Box 27, Latokartanonkaari 3, Helsinki 00014, Finland E-mail: audrey.mayer@helsinki.fi *Int. J. Sustainable Society*, Vol. 1, No. 2, 2008
- “Aiming for Zero Waste” **Ian D Williams** and **Tony Curran**, Waste Management Research Group, School of Civil Engineering and the Environment, University of Southampton e-mail: idw@soton.ac.uk or tcu@soton.ac.uk .This article is on-line. Please visit <http://www.waste-management-world.com/>
- “Assessing collective firm behavior: comparing industrial symbiosis with possible alternatives for individual companies in Oahu, HI” by Marian Chertow^{1,*}, Yuko Miyata, in *Business Strategy and the Environment*. September 2010.
- The social aspects of industrial symbiosis: the application of social network analysis to industrial symbiosis networks in *Progress in Industrial Ecology, an International Journal*, Vol. 6, No. 1. (1 January 2009), pp. 68-99.by [Teresa Domenech](#), [Michael Davies](#)
- **Eco industrial parks in Rio de Janeiro State, Brazil: a proposal for brownfield revitalization** by L. B. Elabras Veiga & A. Magrini September , 2010
- **Eco-industrial Park Oriented Growth Modeling and Symbiosis Efficiency Evaluation of Industrial Symbiosis** was listed as one of China’s Outstanding Doctoral Dissertations October 2010.
- **Emergy analysis of an industrial park: The case of Dalian, China.** By [Geng Y](#), [Zhang P](#), [Ulgiati S](#), [Sarkis](#) in *SCI Total Environ.* August, 2010
- **Industrial ecology, eco-industrial parks and sustainable development** by Juan Candia research for evaluating integration into a New Zealand context.
- “Probabilistic Assessment of Industrial Synergistic Systems” by Yung-Chia Hsu¹, Serge Rohmer² in *Journal of Industrial Ecology* August, 2010.
- **Hara, Keishiro. "Scenario Making and Roadmap for Better Industrial Systems in 2020 -- A Regional Study in China" Paper presented at the annual meeting of the 4S Annual Meeting - Abstract and Session Submissions, Komaba I Campus, University of Tokyo, Tokyo, Japan, <Not Available>. 2010-09-15 http://www.allacademic.com/meta/p422625_index.html**
- Water Integration of Eco-Industrial Parks Using a Global Optimization Approach by Eusiel Rubio-Castro[†], Jos Mara Ponce-Ortega^{*†}, Fabricio Npoles-Rivera[‡], Mahmoud M. El-Halwagi[§], Medardo Serna-Gonzalez[†], and Arturo Jimnez-

Gutierrez[‡] Chemical Engineering Department, Universidad Michoacana de San Nicols de Hidalgo, Morelia, Mich., Mxico, 58060, Chemical Engineering Department, Instituto Tecnolgico de Celaya, Celaya, Gto., Mxico, 38010, and Chemical Engineering Department, Texas A&M University, College Station, Texas 77843 in *Industrial Engineering Chemical Research* September, 2010.

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Eco-Industrial Development and Industrial Symbiosis in Practice:

The following report was received from our friends at International Synergies on their work around the globe.

COUNTRY: Brazil

International Synergies is working with the Federacao das Industrias do Estado de Minas Gerais (FIEMG) and Fundacao Estadualdo Meio Ambiente (FEAM) to deliver a pilot project called Programa Mineiro de Simbiose (PMSI) to Minas Gerais, Brazil. The state accounts for 12% of Brazil's GDP, generating 15 million tonnes of waste per year.

COUNTRY: China

ISL have commenced working with the Tianjin Technical and Economic Development Area (TEDA), the biggest industrial park in the world, to implement an industrial symbiosis network. In addition to the main objectives of decreasing the environmental, social and economic impact of production and consumption, one of the objectives of the programme is further expansion in China.

COUNTRY: Hungary

The Region around Budapest represents major industries within Hungary. The project, delivered in partnership with The Public Foundation for the Progress of Industry (IFKA) seeks to introduce IS principles by developing an in country delivery team and equipping them through the delivery of a pilot programme that could be expanded to a national programme.

COUNTRY: Romania

In Romania, International Synergies is working with the Romanian Ministry of Environment and Sustainable Development, the National Research and Development Institute for Industrial Ecology (ECOIND) and the Ecological Group for Co-operation (GEC Bucovina). The project seeks to introduce industrial symbiosis tools and techniques to Suceava country, north east Romania

COUNTRY: South Africa

The project, co-delivered with the National Cleaner Production Centre of South Africa, provides the basis for developing a South African programme for IS through a multi-pronged scoping approach.

COUNTRY: Mexico

An industrial symbiosis pilot project operated in the Toluca-Lerma region between January 2008 and December 2009. The project was delivered in partnership with the

Confederation of Industrial Chambers (Concamin). In addition the federal body responsible for environmental policy, SEMARNAT, has given strong support for the project.

Work continues to identify continuation funding and also to expand the delivery of Industrial Symbiosis into other regions of Mexico with five other states expressing an interest in operating their own programme.

Slovakia In collaboration with ISL's Hungarian partners, work to demonstrate how symbiotic synergies could be built and work in cross border counties is to begin.

Other Eco-Industrial Projects:

COUNTRY: USA

Minnesota: The University of Minnesota at Moore completed a phase in master planning for the reuse of this former ammunition storage area. One of the reuse opportunities evaluated was redevelopment as an Eco-Industrial Park. This is written up in an appendix to the plan Evolution of the Planning Process, January 2009 which is available as a pdf on the web.

Massachusetts: The Boston Redevelopment Authority created "The Newmarket Eco-Industrial Zone project, funded by a grant from the [US Environmental Protection Agency's Sustainable Skylines program](#), will provide money saving sustainable business technical assistance to area businesses and fund district scale energy efficiency and renewable energy feasibility studies among other goals." The BRA is seeking a consultant to assist with the program.

Washington: The City of Seattle and King County are exploring creating Eco-Industrial Districts, including in the Duwamish River area of the City.

New York: Dutchess County is among a number of local government entities exploring eco industrial development as part of analyzing alternatives for solid waste master plans for their areas.

New York: New York Eco-Industrial Parks and the Rediscovery of Inter-Firm Recycling ...New York City's canneries prove, upon analysis, to be, for the most part ... metaphor that was derived from the Kalundborg industrial symbiosis, the concept of an "eco-industrial ...

<https://www.mises.org/journals/scholar/Eco6a.PDF>

Maryland: Energy Answers International announced plans to locate a Renewable Energy Park within the grounds of the Fairfield Eco Industrial Park in Baltimore. The power plant will utilize products from the municipal waste stream as its fuel source.

COUNTRY: Thailand

Mr. Andreas Koenig spoke with businesses in Bangkok in August about opportunities to create by-product exchanges and eco-industrial development with industrial estates.

COUNTRY: Malaysia

Nusa Jaya is the site for the proposed BioXcell Ecosystem Industrial Park which is in the master planning phase.

COUNTRY: United Kingdom

Scotland: In an on line article entitled “Drink more Scotch and Save the earth” the use of residuals from the scotch making process for biofuels is explored. Cheers!

COUNTRY: Canada

Nova Scotia. Colchester County’s Debert Air Eco Industrial Park initiative has received funding from the federal government.

British Columbia: The Vancouver Metro region is looking south towards Seattle and King County and examining their recent move toward developing eco-industrial districts.

COUNTRY: China

Binhai New Area reports they are working successfully to integrate the concept of the Circular Economy into their development efforts, integrating industrial ecology and eco-industrial development into their development projects.

Reports from Section Correspondents and from the news:

Section member Robin Branson reports:

Thought I would send you a de-briefing about the second Australasian Industrial Ecology Conference that was held in Sydney on 2-3rd September, in case it might be useful for something – the de-briefing, that is! You may recall that I was pretty impressed by the first conference (last year) because of its origin and the range of delegates it attracted. Well, I thought this conference was even better. Slightly fewer delegates – there have been a lot of conferences this year – but an excellent representation from industry, state and federal governments and the odd academic or two.

The theme was recovering resources, basically industrial symbiosis. The scope of content was broader than last year and most of the topics were absolutely fascinating. Gary Foster from NISP in the UK and Jorgen Christensen from Kalundborg both gave terrific key not speeches. We also had Professor Hiroki Hashizume from Tama University in Japan give a key note speech on the challenges of managing waste in that country. A prominent lobby group here called the Australian Council of Recycling (ACOR) was relaunched at the conference under its new CEO which is not a bad association for AIEN to have, being a non-political organisation. The Director of Sustainable Programs at the NSW Department of Environment, Climate Change and Water gave a very interesting presentation on what the department is planning for the next five years or so.

A couple of speakers talked about some technology that has been developed here for using scrap plastic and rubber in steel making. Prof. Veena Sahajwalla from the University of NSW, who invented the process, presented the academic side of the project and Paul O’Kane from OneSteel gave a very amusing description of its practical development and its current operation. If ever you are looking around for an excellent case study on industrial symbiosis, you could do a lot worse than this one.

One presentation that I thought you might have found particularly interesting was given by Artem Golev, a PhD student from Russia, working at the Sustainable Minerals Institute here in Australia.

His research compares the symbioses in the industrial complex at Gladstone, Queensland with an eco-industrial system in his home town in Russia (I had no hope at all of even pronouncing its name, let alone remembering it). What I do remember though is that although there are some strong similarities between the two in relation to population, types of industries and so forth, the Russians seem to have achieved vastly more symbiosis than we have at Gladstone. The principal reason is that central planning associated with the command economy during the communist regime ensured that complimentary industries were co-located, specifically to facilitate what has come to be called industrial symbiosis. One cannot help thinking there is a lot to be said for a command economy. Trying to get companies to collaborate in a market economy is a bit like herding cats, though less successful! Anyway, it is another interesting topic if you need to fill an agenda.

Another world first is the way Dolomatrix has assembled various established technologies to provide an all-accepting, totally safe facility for processing hazardous waste. Rather than carrying on about the presentations etc. I will try to get a link for you, if that would be handy. I thought I had one to send you now but it does not provide general access.

Connect with the reuse experts in Raleigh

BY MARY CORNATZER - Staff Writer Raleigh NewsObserver

Whenever I think about saving money, I think about my mom. She was an expert at it. With six kids, she had to be.

She died before recycling came into vogue, but she was a master at reuse. It was the linchpin of her saving strategy. She went way beyond making us kids wear hand-me-downs. The tubs that butter came in were washed and reused to hold leftover food. Soda bottles were redeemed for change. Old clothes were turned into warm quilts.

I was thinking of that recently after I talked to MaryEllen Etienne, the founder of the Reuse Alliance. Her group is putting on the first ever national reuse convention, Reuse Conex, this week in Raleigh.

For Etienne, who lives in Greensboro, reuse isn't really about saving money. She wants to save the planet and show people that reuse is a viable business model. She points out that **reuse is a multibillion-dollar industry**. She also is quick to distinguish between reuse and recycling. She says reuse offers way more benefits than recycling in that it:

Consumes less energy and conserves natural and man-made resources.

Provides quality products to those with limited means.

Generates revenue, which contribute to the economy.

It also creates jobs.

"The statistics will blow your mind," she says. **"The EPA and the Institute for Self Reliance have figured that when you're managing 10,000 tons of material, incinerating it creates one job. Landfilling creates six jobs; recycling creates 36 jobs, while reusing those same materials can create 28 to 296 jobs."**

The Reuse Alliance got its start in New York five years ago. Etienne, the founding director, followed her heart to Greensboro a few years later and is now busy spreading Alliance chapters around the country. The group's goal is to be a resource and support for people who want to start businesses based in reusing materials, and to create awareness of the value of reuse.

The conference has about 60 speakers coming from across the country and the world to talk about their reuse efforts. It also offers training for novices and skill building for those who are old pros in the business. But I'm particularly intrigued by the Expo, fun stuff aimed at the rest of us.

There will be a silent auction and more than 40 exhibitors, including Goodwill, Habitat's Restore and the Scrap Exchange; local businesses that are, as Etienne says, making a difference and making a living. Products that show the value of reuse will be available to buy, as will pieces from a "ReArt" exhibit showcasing local reclaimed material. Redress Raleigh, which takes old clothes and re-interprets them, will put on a Refashion show on Monday.

All of the items available will show how you can extend the life of something and perhaps bring a little joy in the process. You may also come away with some money-saving ideas on how you can reuse items in your house that you thought were destined for a landfill.

So what does Etienne reuse?

She brings her own take-out boxes to restaurants, always has reusable bags and shops at the Habitat Restore first - to name just a few of her practices.

"It's all about making choices," she says. "Some seem small but when you put them all together, it makes a difference."

It's a triple bottom line my mom would approve of.

EIDC/IS Section correspondent Caroline Eader reports: "got back late last night from the Reuse conference. Quickly there were lots of businesses at the conference, not just consultants and activists. When you're there you "get it" - this is **business - big opportunities** - especially when you learn that in the last 50 years we've used as many resources as the entire time of civilization before us, AND that the construction industry uses 30% of all raw materials. Do the math - how are the world's resources holding up?"

Professional Changes:

We hear from Weslynn Ashton about her new position.

After many years at Yale, I have finally left the nest and started a faculty position at the Illinois Institute of Technology in Chicago last week. I am based at their business school, where they've had an environmental management track for many years but are re-orienting the program with greater emphasis on global sustainability issues. I will be teaching Industrial Ecology along with courses on global sustainability for business and sustainable enterprise development. I am eagerly learning the "green" landscape of Chicago (which has a lot going on!) and the mid-West, and preparing new research projects - I am planning to continue the developing country work that I started at Yale, in India, the Caribbean, and very likely here in the city as well. There are rumors of some symbiosis projects here in Chicago... so I should feel right at home!

My new contact information is below, and I hope to see some of you at upcoming ISIE/IS/EID meetings.

With kindest regards,

Weslynn

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Personal Changes:

Please join with me in welcoming Ms. Natalie Yun Sook Oh to the world, Natalie is the daughter of Ms. Tracy Cassavant of Eco-Industrial Solutions, a section member and Eco-Industrial consultant. She entered the world August 15, 2010 at 6 pounds 8 ounces. Best wishes to mom and daughter.