

## Industrial Symbiosis Eco-Industrial Development Section Update



September- October, 2012

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. Thanks to Reid Lifset and the above image's creator, Matthew Garrett at Yale F&ES, for use of the image.

The Section board consists of Marian Chertow (Professor, Yale U., USA), Weslyne Ashton (Board Secretary and Assistant Professor, Illinois Inst. Technology, USA), Ankit Aggarwal (Student, TU Munich, Germany, Student Member), Professor Shi Han (Board Treasurer and Assistant Professor, City U of Hong Kong, China), Rachel Lombardi (Research fellow U. Birmingham, UK and practitioner with NISP), and Peter Lowitt (FAICP, practitioner, Devens Enterprise Commission USA and board Chair). The board serves for a two year period from 2011-2013.

A Nominating Committee consisting of section members Weslynn Ashton (USA), Bruce Chung (Taiwan), Robin Branson (Australia), Guillaume Massard (Switzerland) and Graham Aid (Sweden) has been created with an eye toward nominating a slate of candidates to be voted on and take office during the June 2013 ISIE Conference in Ulsan, Korea. The Board can include between 5-9 members and the nominating committee has been instructed to take geographic and gender diversity into account with their nominations. If you are interested in serving the section, please let one of the nominating committee members know.

We have other committees which could use your energy and interest.

- Communications: this committee will work on establishing protocols for communicating with members and be responsible for sending out updates. The group should examine the various existing communications platforms and determine how best to communicate with members of the section and non-members. An active Linked In discussion group has been one result of this initiative. (<http://www.linkedin.com/groups?about=&gid=1845383&trk=anet Ug GrpPro>). We encourage you to join up and add to the discussion. The active exchange of ideas on this site ranges from discussions of orange by-products as a source for biofuel to discussions of parallels' between the financial and climate crisis (see below for a summary of this update's topics).
- Programming and events: this committee will work on defining (co-)sponsorship of events, assist in planning events; determining ways goals and deliverables for the section, examining ways to fund initiatives such as PhD student exchanges or graduate consortium events. The 10<sup>th</sup> Annual Industrial Symbiosis Research Symposium (ISRS) will take place the day before (June 24) the ISIE Conference at the University of Ulsan in Ulsan, Korea next June 25-28, 2013. Professor Hong Sue Park will chair the 10<sup>th</sup> ISRS which will be co-sponsored by our Section and Yale University. Professors Shi Han and Weslynn Ashton have been appointed by the chair to review presentations submitted under the EID/IS track for the 2013 Ulsan ISIE Conference next June. Call for abstracts for the June, 2013 7<sup>th</sup> ISIE conference in Ulsan are due November 30, 2012 at (<http://is4ie.org/isieulsan>).
- Database and information sharing: this committee will work on determining the best means of sharing information about projects and synergies, utilizing existing platforms or suggesting new ones, and working together to organize this initiative. We need volunteers for this committee. Graham Aid is working with other section members (including Chris Davis and Antonis C. Kokossis) to investigate establishing a useful database of exchanges. Anyone interested in participating in these discussions should contact Peter Lowitt (peterlowitt at devensec dot com).

**Linked In Questions and IS Case Studies:** Much thanks to Ines Costa for starting this group. The following are some of the recent postings. Be sure and go to our Linked-in site for more in depth information on these and other items. This effort assists the Section in implementing our communications plan.

Robin Branson started a timely discussion on the Tricks and Treats of Industrial Ecology in Australia.

Ines Costa raises a question about breaking down used carpets into products for the construction industry in an online discussion entitled “carpets to construction”

Florian Hemmer started a dialog about IS and Cradle to Cradle.

Graham Aid chimed in on a topic IS and the Rebound effect.

Ines Costa started a discussion on food from agricultural waste

Artem Golev started a discussion of the Gladstone Industrial Symbiosis Study

Roman Sacchi started a conversation around “an intelligent way of reusing production waste from the renewable energy industry.”

## **Conferences, workshops, courses and other events**

- 2013 International Society for Industrial Ecology Society Conference, 2013, **Ulsan**, Korea
- Industrial Ecology event to be held on 22nd November at the Australian Waste and Recycling Expo in Sydney ([www.awre.com.au](http://www.awre.com.au))
- Switch Asia Conference on Post Rio Future We Want in Asia, November 13-14, 2012 Bangkok, Thailand <http://www.switch-asia.eu/switch-policy/news/scp-in-asia.html>
- The organizing committee of the 6th International Conference on Life Cycle Management invites you to send in submissions to the conference in Gothenburg 25-28 August 2013. Theme of the conference will be: Perspectives on managing life cycles. This theme focuses on local versus global perspectives in life cycle work, roles and responsibilities in product life cycles and value chains, and conceptions of sustainable product life cycles and value chains. Topics covered by the conference are listed below and described further at [www.lcm2013.org](http://www.lcm2013.org). Please note that sessions having different formats than traditional oral setting (such as workshops, panel discussions, round tables etc.) may have divergent requirements on the type of contributions sought for. Deadline for contributions is 1st of December 2, 2012
- Clinton Global Initiative Announces Sustainable Waste Foundation Clinton, USGBC to Promote ‘Climate Positive’ Urban Projects. The Clinton Global Initiative announced the launch of the Foundation for Sustainable Waste Resources, an initiative of the Cason Family Foundation, with partner D-Waste to address health and environmental problems caused by billions of tons of waste produced worldwide. The foundation’s first initiative will be to partner with organizations, companies and NGOs to create an interactive global map of waste management systems. The global partnership will develop specific metrics and indicators, allowing the public to follow the progress achieved in waste management and its related health and environmental impacts. The map will be created through development of a platform using IT, GIS, databases and mobile applications. Existing databases and sources will be merged and uploaded into a single database. The foundation will host the database and provide data and mapping services. The foundation will identify locations of significant amounts of waste and then work with the waste management industry, including collectors, developers and governments to find ways to

- convert that waste into valuable resources. The foundation said it also will work to design a set of principles that includes rules of engagement for the acquisition of secondary raw material and the incorporation of waste pickers into the supply chain in a cost effective and responsible manner. Jill Boughton will serve as the foundation's CEO, beginning January 1, following her retirement from Proctor & Gamble. The Clinton Global Initiative has launched several energy efficiency and emissions and waste reductions programs in recent years. Last year, the organization launched a three-year project aimed at increasing energy efficiency in US buildings with Goldman Sachs, Greenprint Foundation, Johnson Controls, Jones Lang LaSalle, Malkin Holdings LLC, the Natural Resources Defense Council, Vornado Realty Trust and YR&G.
- Guillaume Massard of Sofies working under contract to the Swiss Office of the Environment (BAFU) held a workshop on Eco-Innovation Parks in Bern, Switzerland in cooperation with Eco-Innova. Mr. Massard and Sofies team documented hundreds of Eco-industrial type parks across Europe and in numerous countries that they studied. We are all looking forward to the release of the final report which is anticipated to be the beginning of 2013. I was especially impressed with the event and the case studies presented during it. Bravo to Guillaume, his colleagues, the good folks from BAFU and the talented presenters and their worthwhile projects.

## **Publications and presentations of interest:**

- Call for papers: You are cordially invited to submit or recommend an article to the Open Journal of Ecology (OJE, ISSN: 2162-1993), a fast track peer-reviewed and open access academic journal, which is published by Scientific Research Publishing (SCIRP). OJE covers many aspects in Ecology, and more detailed information can be found at: [www.scirp.org/journal/oje](http://www.scirp.org/journal/oje).
- Check out the web site of the Creative ReUse Association launched by the ReUse Alliance <http://www.reusealliance.org/projects/cra>
- Professor Janet Hammer and colleagues at Portland State University under contract with the US Economic Development Administration have launched a Triple Bottom Line tool which features a case study on the Devens Eco Industrial Park. <http://tbltool.org/> The case study can also be found on the [www.devensec.com/sustain.htm](http://www.devensec.com/sustain.htm) web page.
- Peter Layborn of International Synergies spoke at an event sponsored by the Light House Sustainable Building Centre in Vancouver, BC Canada in October. The talk was entitled "Launching Regional Industrial Symbiosis in Metro Vancouver: Our Pathway to a Low Carbon Economy" as part of an International Symposium on Sustainability sponsored by the Light House Sustainable Building Centre.
- Washington State Chapter of the American Planning Association held their annual conference in October which featured a presentation on the Devens Eco Industrial Park.
- EDI Quarterly Featuring Industrial Symbiosis and Energy Security published this fall, 2012  
[http://issuu.com/edi\\_quarterly/docs/edi2047\\_quarterly\\_3\\_okt\\_2012?goback=%2Egde\\_1845383\\_member\\_171296091](http://issuu.com/edi_quarterly/docs/edi2047_quarterly_3_okt_2012?goback=%2Egde_1845383_member_171296091)

- Jon Turney wrote a piece of note:  
<http://www.forumforthefuture.org/greenfutures/articles/industrial-symbiosis-thing-worth-backing>
- The final report and recommendations from the 1st International Working Conference on Applied Industrial Symbiosis held this past June have been released contact maggie dot morrissey at international-synergies dot com for your copy.
- The Algae Biomass Summit was held in Denver this fall and the Biofuels Digest report on it and the potential for this synergy laden industry should be reviewed by those of us interested in industrial symbiosis.
- Veolia Waters' Jean Filhol spoke about opportunities to unlock the value of waste water in Asia to Eco Business.com. "As developing Asia gets serious about industrial pollution, at least one firm is showing companies that wastewater treatment can be more than just an obligation; it can be a business opportunity. Jean-Philippe Filhol, chief executive of Veolia Water Solutions' Asian industrial division, recently told Eco-Business in an interview that companies have been missing out on the value locked up in wastewater. "Unless you realize that wastewater is much more a valuable resource than a waste, you don't see it as a part of your production process and hence it is not considered critical," he said. Earlier this year, Veolia started an initiative called Green2Biz to help show companies how improving their wastewater treatment can help them achieve energy savings, and reduce their environment impacts in the same way it helped multi-national cosmetics firm L'Oreal."

## **Eco-Industrial Development and Industrial Symbiosis in Practice:**

### **Eco-Industrial Projects:**

#### **COUNTRY: USA**

**Massachusetts:** The Devens Eco-Efficiency Center and Devens Enterprise Commission hosted a gathering of US Eco Industrial Parks and Projects September 12-14, 2012. Results from the event can be viewed at <http://www.devensec.com/sustain.html>. Also, we hosted a visit from Real Patry and colleagues from Windsor, Quebec who visited Devens as they undertake plans for a possible eco industrial park in their community.

**North Carolina:** Charlotte – Renewed World Energies (RWE) has agreed to enter into a partnership with ReVenture Park in Charlotte, North Carolina to develop an algae-to-fuel pilot plant. The Eco-Industrial Park caters to clean energy businesses and will work with RWE to expand its technology from pilot scale to commercial scale. The company is developing different strains of algae that will be utilized to create biofuels as well as health supplements. The pilot facility is expected to be operational September 30, 2012. In a more social note, a recovering owl has made ReVenture Park its home. In October, the US Department of Energy visited ReVenture Park to assess its use as a model for restoring formerly contaminated sites to productive use through redevelopment as an

energy hub. Also in North Carolina there is a great article on Piedmont BioFuels and how they got off the ground. [Www.biofuels.coop](http://www.biofuels.coop)

**Minnesota:** Silver Bay Eco Industrial Park. Check out a presentation on their park at [www.devensec.com/sustain.htm](http://www.devensec.com/sustain.htm) USEIP Networking Event. Bruce Carmen writes: “Here is an up to the minute update on our food system. It continues to draw many visitors from both the public and private sectors which is exactly what we want. In some regards it is a little overwhelming. We are continuing to bring the system up to full production, a balance between adding more fish vs adding more plant life and algae. We are now producing more than 400 heads of lettuce per week. The fish continue to grow and we are now starting to breed our own. Distribution of the produce has been easy so far, no shortage of takers at \$1.25/ hd of Romaine Lettuce. We went through the Organic Certification process last Friday and certification looks good. This will be the first organically certified system of this type within our region...maybe nationally? The wood pellet biomass heating system has worked perfectly so far. Exterior temps are now starting to dip into the 20’s at night here, so the system is really just gearing up for those nights below zero and the wind is out of the NW. The rain capture system is also working just fine, still no water within the system from any other source. Because the system is all above slab and for the most part gravity flow, we have determined that retrofitting it to just about any structure is completely viable. Within in our area, we are looking at our vacant building inventory, especially structures with specialized uses, like vacated schools. We are going to choose one and retrofit it. This should reduce capital costs, making the entire concept more viable economically, etc. Our ultimate goal is to essentially make the food system a “kit” of sorts with R&D within the Eco-Park. Educationally, the University of Minnesota – Duluth would do a lot of the R&D and is in the process of developing a curriculum for students to be able manage and operate a “typical, similar facility” so that when a facility comes on line so to speak, quality staffing can also take place while providing job placement opportunities for the graduating student. Our intention is to develop this concept to the next level, including the concept of vertical farming and urban food production systems.” Way to go Bruce and the entire Silver Bay team! In Grand Rapids, MN “the first new tenant for the old Ainsworth property (The Itasca Eco Industrial Park) is Cutsforth Holdings, LLC” according to the Grand Rapids Herald Review.

**Oregon:** The Portland Sustainability Institute hosted the 3<sup>rd</sup> annual EcoDistrict Summit October 23-24, 2012. The focus of the conference was district scale sustainability efforts.

**COUNTRY: Thailand** PPT plc proposes to develop Eco-Town in the Rayong Map Ta Phut area into an eco-industrial zone.

**COUNTRY: Malaysia**

**COUNTRY: United Kingdom**

**Northern Ireland:**

**COUNTRY: Azerbaijan** Baku. Discussion in local press about “establishment of Balakhani Eco-Industrial Park that is being created according to the Decree of the President of the Republic of Azerbaijan Ilham Aliyev dated 28 December 2011, in order to provide development of recycling industry in our country, to increase young

entrepreneurs' interest in this field, future plans and green business opportunities. It was also mentioned that waste management is not only a process providing environmental protection, if proper management and mechanisms are used, it can also be a business opportunity supporting healthy social-economic development."

**COUNTRY: Australia** "Vaughan Constructions has been appointed to develop the Cabrini Linen Service's new four-star Green Star \$30 million laundry and distribution facilities at the Logis Eco Industrial Estate in Dandenong South" near Melbourne.

**COUNTRY: China.** In Shuozhou, the China Daily News writes that the coal industry is able to use new technology to utilize "gangue, which refers to surrounding rocks once considered to be commercially worthless" and mine coal ash. Another park was recently launched in China, the "Xintai Circular Economy Park is located south of Loude Town of Xintai with planned area of 14 square kilometers. It's next to Jining city in the south and Ningyang county in the west. Relying on Shandong Liaherd Chemical Industry Co Ltd, Shandong Huayang Pesticides Group, and Taishan Salt Chemistry Group, the park has developed a circular economy structure that features recycling of upstream and downstream products, long industrial chain, and radial expanding. The park has been equipped with complete infrastructure facilities," according to its on line promotional literature.

**COUNTRY: Sweden**

**COUNTRY: Nepal**

**COUNTRY: Philippines**

**COUNTRY: Vietnam** Hanoi, Vietnam – Panasonic launches Eco Ideas Factory at Thang Long Industrial Park. Panasonic hopes to illustrate many of its green industry programs and techniques at their plants in this park. Also in Vietnam, the nation adopted a formal green growth strategy to get them to a low carbon economy. It includes references to more efficient resource use and "Another mission is to promote environmentally friendly green production that uses natural resources more efficiently. This is a radical part of the green growth model because rapid economic development over the past decades has resulted in serious environmental degradation"

**COUNTRY: Canada** Banff, Alberta. Tracy Casavant (Lighthouse Sustainable Building Centre), Chandra Sharma of the GTAA/Pearson Eco-Industrial Park in Toronto, and Neil Angus (Devens Enterprise Commission) presented on Eco Industrial Parks at the Canadian Institute of Planners Conference in October. In Southgate Ontario the City "Council was getting public input into a proposed zoning bylaw amendment to permit a new tenant in the Dundalk Eco Industrial Park — a soil remediation facility adjacent to the Dundalk sewage treatment facility and a watercourse." This site had been blockaded by citizens and first people's opposed to the project which will allow waste handling operations before a court order ended the blockade. In other news, a transit survey was conducted for the Taiga Nova Eco Industrial Park in Alberta.

**COUNTRY: Belgium**

**COUNTRY: Switzerland**

**COUNTRY: Norway**

**COUNTRY: Denmark.**

**COUNTRY: Italy** Prato, Tuscany: 1<sup>st</sup> Macrolotto Industrial area is looking for Energy Service Companies (ESCOs) who are interested to apply, within the industrial area

known as 1st Macrolotto of Prato (Italy), the recent new agreement regarding the regulation of the Tuscany Region for the construction of photovoltaic plants as part of the Italian funding program known as “V° Conto Energia”. Through this agreement, the Tuscany Region aims to further develop the use of solar energy between citizens and small and medium-sized enterprises. This is aimed at promoting the relationship between the Energy Service Companies (ESCOs) and those interested in installing a PV system without incurring costs.

I think that is a good opportunity to apply these financial contributions to a whole big industrial area like the 1st Macrolotto. Contact Ing. Jacopo Cartoni

**COUNTRY: Tunisia**

**COUNTRY: Netherlands**

**COUNTRY: Finland**

**Country: Bahamas**

**COUNTRY: Brazil:** Brazil becomes the second country in the world to establish a National Industrial Symbiosis Program. The announcement was made during the RIO + 20 conference in late June.

**COUNTRY: Japan** “Public-Private-Academic Group to Produce Carbonate Monomer from CO<sub>2</sub> Recovered from Municipal Waste. The city of Iizuka in Japan's Fukuoka Prefecture announced on May 18, 2012, that it, working with the Molecular Engineering Institute of Kinki University and private-sector companies, had conducted a verification test based on a low-carbon, closed-loop economy model. The test was carried out from October 2011 to March 2012 as a city-backed advanced technology development project. The group of partners succeeded in recovering highly concentrated carbon dioxide (CO<sub>2</sub>) with a purity of about 70 percent from exhaust gas generated by the city's garbage treatment facility using a honeycomb adsorption method that separates heat, moisture, and impure gas. After further concentrating the recovered CO<sub>2</sub>, carbonate monomer, a substance useful for producing functional resins, was obtained. The recovered carbonate monomer has the potential to be commercialized for adhesive and coating material applications. If successful, the research and development of separation and capture of CO<sub>2</sub> from waste disposal sites as well as functional materials using the recovered CO<sub>2</sub> will not only reduce CO<sub>2</sub> emissions but also create a new market for environmentally friendly functional high-polymer materials, an important step toward realizing a low-carbon, closed-loop local economy.” From the Japan for Sustainability website

**COUNTRY: Korea**

**COUNTRY: Nigeria**

**COUNTRY: Germany** “ In Germany, researchers with the Fraunhofer Center for Chemical-Biotechnological Processes CBP in Leuna, opened a pilot plant on October 2 to divide waste wood into lignin and cellulose to serve as raw materials for products such as plastic. Working jointly with 12 partners from industry and research institutions, recently developed a process that enables them to use 80 to 90 percent of the wood substance – moreover, the lignin is sulfur-free. “ From Jim Lane of the Biocominstitute.com

**COUNTRY: Hungary and Slovakia**

**COUNTRY: India** Dr. Yogesh Patil has started working on industrial symbiosis of Pune region of Maharashtra. Dr. Patil is a Professor at the aptly named Symbiosis

Institute of International Business, Pune, Maharashtra, India. GIZ has publications on its web site about Eco Industrial Parks in Andhar Pradesh.

**COUNTRY: Trinidad and Tobago** The Tobago House of Assembly has authorized the construction of the first Factory Shell for the Cove Eco-Industrial Park.

**COUNTRY: Romania**

**COUNTRY: Singapore.**

**COUNTRY: South Africa.**

**COUNTRY: Turkey**

## **Professional Changes and Opportunities:**

### Vacancies for Industrial Symbiosis Practitioners in the North of England

The NISP Network has a number of vacancies for Industrial Symbiosis practitioners across the North of England.

The roles will involve recruiting business members to the programme and using the principles of industrial symbiosis to identify ways to improve resource utilisation that generate business opportunities and/or cost savings.

Ideal candidates will have experience working closely with business to reduce their environmental impacts and a wide knowledge of different industry sectors.

For more information about the role and to apply visit [www.international-synergies.com/opportuniti](http://www.international-synergies.com/opportuniti)

### **Section Board Member Weslyne Ashton receives \$1.1M Award**

A six-university US-Latin American consortium led by Dr. Weslyne Ashton of the Illinois Institute of Technology was awarded a US\$1.1M grant from Higher Education for Development and the US Department of State to lead the “Pathways to Cleaner Production in the Americas” initiative. The three year project aims to promote and facilitate sustainable industrial development throughout the Americas. The award will fund faculty capacity building in inter-disciplinary approaches to cleaner production, experiential learning opportunities for students to work with micro-, small- and medium enterprises (MSMEs), and active assistance to MSMEs in the implementation of cleaner production and sustainability practices. Industrial Ecology will be integral to the training and implementation aspects of the project, and was the most highly desired topic of interest for many of the Latin American faculty. Members of the consortium include New York Institute of Technology, Costa Rica Institute of Technology, Santo Domingo Institute of Technology (Dominican Republic), Central American University “Jose Simeon Cañas” (El Salvador), and San Ignacio de Loyola University (Peru), with additional partners from Guatemala, Honduras and Nicaragua expected to join by the end of 2012.

More information can be found on our website: [www.cleanerproduction-la.org](http://www.cleanerproduction-la.org), our Facebook page: “Pathways to Cleaner Production in the Americas”, or by emailing Dr. Ashton at [washnton@iit.edu](mailto:washnton@iit.edu).

### **Job Changes**

Section member Jaspal Marwah from Vancouver, BC Canada announced “As most of you know, I’ve moved to a new position and am now part of the public involvement team

at Metro Vancouver. I'll be working on consultation processes for number of solid waste projects (ie. under the Zero Waste Committee) , so feel free to get in touch anytime if you're interested in what's happening in this realm." Jaspal dot marwah at metrovancouver dot org