

Industrial Symbiosis Eco-Industrial Development Section Update
August 12, 2011-November 23, 2011
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 Section board consists of Marian Chertow (Professor, Yale U, USA) , Weslynn Ashton (Secretary) Assistant Professor, Illinois Inst. Technology, USA, Ankit Aggarwal (Student, TU Munich, Germany, Student Member), Professor Shi Han (Treasurer) Assistant Professor, City U of Hong Kong, China , Rachel Lombardi Research fellow) U. Birmingham, UK and Practitioner, and Peter Lowitt, FAICP, practitioner, Devens Enterprise Commission USA(Chair). The board serves for a two year period from 2011-2013.

The board and members attending the Section meeting held during the ISIE conference this June agreed to work on three initiatives.

- 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.
- 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 section plans to participate in the ISIE Asia event in China next year as well as promote anniversary events being held by NISP and Kalundborg, also scheduled for next year. Shi Han announced that Ms. Song Yuyan, Director TEDA ECO Center agreed to co-sponsor the 9th ISRS which is tentatively scheduled to be held on Sept. 13, 2012 in Tianjin, China.
- 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.

A 2007 study, *Mission Possible: Successful Canadian Cities*, by the Conference Board of Canada, identified four cornerstones: a strong knowledge economy to attract business investment and a talented and skilled labour force; a connective physical infrastructure (i.e., a transportation system that can effectively move goods and people); environmentally sustainable growth based on sound planning and industrial ecology principles; and social cohesion, the critical components of which are attractive and accessible housing, a low crime rate, effective immigrant settlement, comprehensive cultural and entertainment amenities (not the least of which are libraries, which act as community centres as much as places to borrow books), and a strong social safety net.

Linked In Questions:

Always the data... Just got the news today that the EU is pushing for further harmonization in data collection for its EU members green balance sheets. In our scope of action, this is starting with raw material flows, but I am betting that soon we will be talking about waste as well. From Ines Costa.

Rick Abelson blogs about Wastewater (8/26/2011) will be of interest to our members. Is “Value Park” another synonym for Eco Industrial Parks? The blog posits that wastewater plants can become anchors for Eco Parks.

“Much of the inefficiency surrounding our use and misuse of water derive from entrenched habits formed during previous eras of presumed inexhaustibility of water supplies. Our wastewater treatment approach has traditionally relied on an infrastructure of centralized municipal water plants where tertiary effluent is recycled. These plants consume considerable energy and cost to restore all of the water they process.

This habitual approach to managing water warrants more thoughtful strategies. These could include selectively treating wastewater to different levels of purity based on the varying levels of water purity for specific purposes rather than defaulting to the established approach of one-size-fits-all centralized wastewater treatment.

One emerging strategy of leveraging the efficiency of wastewater treatment is the application of the *value park* concept. Borrowing from the symbiotic relationship between petrochemical operations and the need for high volume, low cost manufacturing, value parks have become the norm by clustering around the edges of refineries and tank farms in a unified manner to use tertiary chemicals and byproducts to produce everyday household consumer products such as plastics and cosmetics. This consolidation of activity and energy reduces carbon impact of the manufacturing process and uses byproducts that normally would go to waste.

Expanding on the concept, a ‘wastewater value park’ envisions a micro-economy of water-dependent business clustered in many urban environments, including local nurseries, small industrial parts manufacturers (aviation, auto) and select processing plants that require less pure water for a variety of purposes from cooling to plating. By integrating our wastewater treatments plants as a catalyst for urban redevelopment, economic opportunity, job creation and environmental stewardship can emerge.

Instead of viewing wastewater treatment plants as isolated facilities, we should look forward to the day when more communities will proudly regard such places as integrators of advanced water technology that helps fulfill the as many goals as possible to change the way cities are built the future.”

Conferences, workshops, courses and other events

- 2013 International Society for Industrial Ecology Society Conference, 2013, Ulsan, Korea
- NISP 10th anniversary conference which could include joint celebrations with Kalundborg around their 50th anniversary are in the planning stage. According to Peter Laybourn of NISP “the intent of the conference is to develop specific plans around the contribution of industrial symbiosis to major world themes. Emerging headings (not fully finalised) are around ...
 - 1) Development of post disaster and post conflict economies – building more resilient economies
 - 2) Industrial symbiosis as a driver of demand led innovation
 - 3) Rapid deployment of IS across Europe (this will be in response to the then published – September 2011- Resource Efficient Europe Road Map by the European Commission)
 - 4) Regional/Local Economic Development through Intelligence Based Industrial Symbiosis (RED IBIS)
 - 5) Accounting for carbon arising from industrial symbiosis activity and its contribution to tackling Climate Change – aligning the carbon savings with national budgets and carbon trading mechanisms

The principal driving organisations behind the topics are

- 1) World Bank, OECD, UNIDO
- 2) OECD, Technology Strategy Board, UKTI, Universities, DG Research and Innovation
- 3) European Commission (DG Enterprise and DG Environment), European industry bodies such as Plastics Europe, Environmental Technologies Action Plan (ETAP)
- 4) Municipalities, regional development agencies, planners, Birmingham City Council (largest municipality in Europe), DG Regional Policy
- 5) Carbon accountants, carbon traders, Prince of Wales, WWF, OECD, DG Climate Action

Each working group will produce a 'practical' blueprint that will be published post conference. There will also be a 'ceremony' where international Synergies will remove the firewalls between the international programmes using synergy enabling more than 10 programmes across the world to talk to each other and share data and synergies." The conference will be hosted by International Synergies/Birmingham City Council.

Presentation on "Eco-industrial Development Strategies for Industrial Parks on Provincial and National Level in India". September 2011

An International Conference on "Industrial Park Administration and Management" was organised by the GIZ's Energy Policy and Energy Efficiency Programme in China together with the Shanxi Provincial Development and Reform Commission (PDRC) at Taiyuan, Shanxi Province during September 17-18, 2011. The conference had presentations from Germany, Tunisia, India, Indonesia, China and United Kingdom. The conference had over 100 participants from government and industry.

Mr. N. Raghu Babu from the GIZ's ASEM Programme in India made a presentation on "Eco-industrial Development Strategies for Industrial Parks on Provincial and National Level in India".

Publications and presentations of interest:

- "The Institute of Scrap Recycling Industries, Inc. (ISRI) has released a new analysis that provides an in-depth look into how the scrap recycling industry contributes to the economy by providing jobs, products and goods and services.

The study, commissioned by ISRI and undertaken by John Dunham and Associates, closely examines the economic effects of the scrap recycling industry and presents its finding in an interactive website. In addition to providing detailed data on the direct and indirect economic effects of the industry, the study also provides information on the jobs and exports created by it. The comprehensive study also provides a detailed break-down on the national and state level, as well as by legislative and congressional districts.

For instance, a user could find out how many scrap recyclers are in a specific legislative district, how much they pay in wages, what specific industries they have an impact on and by how much. For those who have to appear before a local budget board to get funding for a recycling program, the site also provides a set of talking points by legislative or congressional district.

The study demonstrates that the scrap recycling industry is more than just about hugging trees. It employs 459,131 people and will generate an estimated \$10.3 billion in tax revenues for governments across the country in 2011. Additionally, the study also found that the total activity created by the industry in the U.S. will exceed an estimated \$90.6 billion in 2011, making it similar in size to the nation's forestry and fishing industries combined. Interestingly, the study also found that the recycling industry contributes as much to the economy as the coal mining

industry and nearly as much as all the nation's professional sports teams. By Jake Thomas, Resource Recycling”

- The Benefits of Industrial Symbiosis of the Eco-Industrial Parks in Taiwan *by* Yen-Chuan Chen Co-author(s): Hsuan-Chi Chen¹, Hui-Lan Chang¹, Zeng Wang¹, Chen-Chiu Ts, Jui-Hsi Yen², Yi-Hua Li², Chi-Ming Chiu², Ying-Ying Lai², and Tien-Chi Wu
http://www.earth2011.org/sites/default/files/papers/The%20Benefits%20of%20Industrial%20Symbiosis%20of%20the%20Eco-Industrial%20Parks%20in%20Taiwan@EARTH2011_1000530.doc **Abstract:** In Taiwan, a total of four eco-industrial parks (EIPs), called the environmental science and technology parks (ESTPs), has been newly developed at Kaohsiung, Hualien, Tainan and Taoyuan, respectively, to find the feasibility of enhancing resource recycling and promoting green industry. The ESTP project is embarked by the Taiwan Environmental Protection Administration (EPA) since 2002 to 2011 to pursue the goal of sustainable development and to develop a circular economy. Currently, 40 companies classified as resource recycling and urban mining have been approved to be stationed in the park by Taiwan EPA. Among them, 15 firms had begun operations. This paper aims to show the current benefits of industrial symbiosis of the ESTPs until 2010 and prove that the promotion of the ESTPs has economic, social, and environmental benefits simultaneously.
- Lloyd Alter writes from Toronto questioning whether the Vertical Urban Factory can Return and of Nina Rappaport who describes the benefits of urban factories and identifies some new eco industrial projects in the process:

“Cities offer valuable advantages for industrial sustainability. Density allows for shared resources that can support industrial symbiosis -- one factory's heat waste fuels another. Nano and biotech companies, such as those in the Bizkaia eco-industrial park in Bilbao and the new CleanTech corridor along the Los Angeles River, have formed clusters in industrial zones to use proximity to their benefit. Imagine the New York waterfront returning to its manufacturing strength as clusters of vertical factories, linked by water, high-speed elevated rail systems or overhead conveyances, become hubs of production and distribution.”

Factories are different today, they are not so noisy or dirty as they used to be. Designed properly, they could easily coexist with other uses.

“Advancements in ecologically-responsible technology mean that clean manufacturing can exist adjacent to residential spaces, and that work and living can be hybridized in new ways. The architectural and urban issues addressing manufacturing in cities present not only an exciting design challenge of integrated systems, new fabrication technologies and emergent materials, but create a demand for new solutions. Vertical urban factories could produce energy rather than just consume it, and workers could recycle goods, rather than spew them out. This in turn would close the loop of making, consuming and recycling as part of a new urban spatial and economic paradigm.”

- The Green Economy Coalition has a piece on Kalundborg on its web site with links to Ehrenfeld and Gertler's article in the Journal of Industrial Ecology issue 1#1.

- Jim Lane, editor of the BioFuels Digest looks at industry trends for 2050 “Eight for 2050” and concludes “ **1. Waste capture**

Today, we capture just a fraction of the total output of greenhouse gas emissions, not to mention industrial, municipal, agricultural, animal and forest residues. Expect this figure to change radically, as rising costs of virgin materials, plus breakthroughs in biology and catalysis open up new opportunities to turn waste streams into value streams. Carbon capture is just one element here – think conversion, capture and repurposing of all industrial wastes as an industrial goal for 2050. [The Kalundborg Symbiosis is a good start.](#)”

- **Industrial Ecology is a Winner!** “Young inventor Prasan Warnakula, a 12th Grade student of Joseph Vaz College, Wennappuwa brought honour to Sri Lanka winning second place in the Stockholm Junior Water Prize organized by the Stockholm International Water Institute. Pasan’s idea was to use industrial waste water from the textile industry to make recycled paper. A large volume of water is consumed in the textile finishing process with several chemicals used in dyes for colouring the clothes.

This waste water has to be treated to remove the chemicals before it is released to the environment and utilizes a compound called Alum (Aluminium sulphate) which reacting with the chemical particles in the water makes a heavy compound which can be separated from the water. This same alum is used for the paper recycling process. Prasan has investigated the possibility of integrating paper recycling with chemical treatment of wastewater. The World Water Week in Stockholm, a global conference focusing on big water issues and practical solutions attracts experts, opinion leaders, and decision-makers from every corner of the globe. Parallel to the event, a competition is held to recognize innovative projects that contribute to the water conservation. The Stockholm Junior Water Prize was introduced 15 years ago to encourage youth participation. Leading garment exporter Brandix plans to implement Prasan’s novel idea as a pilot project soon. “ From a Sunday Times article entitled “From Pollutant to Pulp” by **Malaka Rodrigo**

- **Mineral Carbonation as the Core of an Industrial Symbiosis for Energy-Intensive Minerals Conversion** by Geoffrey F. Brent, Daniel J. Allen, Brent R. Eichler, James G. Petrie, Jason P. Mann, Brian S. Haynes published in the Journal of Industrial Ecology and on line 6 Sep 2011.
- **Towards eco-agro industrial clusters in aquatic production: the case of shrimp processing industry in Vietnam** by Pham Thi Anh, Tran Thi My Dieu, Arthur P.J. Mol, Carolien Kroeze, and Simon R. Bush in Vietnam Association for Conservation of Nature and Environment publication August 2011.

- Denis Clodic of MINES ParisTech co-chaired a panel along with Adam Hansel of the Digital Technology Laboratory in October on Industrial Symbiosis at the 2011 California France Forum on Energy Efficient Technologies “How to Achieve a Low CO2 Industrial Plant”

Eco-Industrial Development and Industrial Symbiosis in Practice:

Eco-Industrial Projects:

COUNTRY: USA

California:

The city of Rialto’s profile details projects that promote sustainable economic development including its award-winning Downtown Vision and Strategic Plan and the proposed development of the Rialto Eco-Industrial Energy Park.

The Eco-Industrial Park, which will occupy 9 acres at the city's wastewater treatment plant, will create a "green collar" job sector, while helping to improve the environment and increase city revenues.

Lawrence Livermore Labs seeks Eco Industry partner to advance the development of renewable energy and other green technologies through utilization of their high performance computing resources

North Carolina: Gaston County is out to bid for plans for a “Gaston County Green Energy Eco Industrial Park”

Charlotte: Reventure Park met again with citizens to update them on the progress of their redevelopment efforts which include developing a portion of their site as an eco-industrial park.

Minnesota: Itasca Eco Industrial Park will be conducting a tour of the park on August 15, 2011.” Join Northeast Clean Energy Resource Teams (NE CERT) Monday, August 15th 1 - 4 p.m. to learn about the economic, entrepreneurial, and environmental opportunities that Eco-Industrial Parks offer in NE Minnesota. We'll tour the Itasca Eco-Industrial Park and learn about advanced clean technology.”

Also in Minnesota, the Silver Bay Eco Industrial Park announced that it had received three grants totalling \$600,000 to help its implementation. “The idea of a Silver Bay industrial park that is ecologically friendly is becoming more of a reality thanks to three new grants totaling nearly \$600,000 that will be used at the park.

The city was recently notified by the Minnesota Lake Superior Coastal Program that two grant applications were approved for funding. In addition, the Minnesota Department of Employment and Economic Development also approved Silver Bay’s grant application.

The \$580,000 from DEED comes from the Innovative Greater Minnesota Business Development Public Infrastructure Program. This money, along with \$250,000 previously approved by the Iron Range Resources and Rehabilitation Board and money awarded from the state Legislature, will be used to offset construction costs for a biofuel-food greenhouse.

The greenhouse will produce organic food for local consumption and serve as a research and demonstration center to other areas of the state interested in similar practices.

The first grant from the Coastal Program is for \$10,000 to be used for land use planning and zoning guidelines for the park.

It will help create guidelines for businesses that wish to develop in the space designed on environmental awareness, economic development, and sustainable community development.

Also from the Coastal Program is a \$10,000 grant to help with the education aspect of the park, known as the Educational Cluster Program Statement Planning. It will help develop curriculum about the eco-park so that educators, tourists, and officials can learn about the industry through conferences and visits.

The city hopes to bid the greenhouse project out and have it built this summer. Silver Bay City Administrator Lana Fralich said the city is still waiting for grant agreements to be formally accepted and signed before the project begins.” By **Brittany Berrens**, Lake County News Chronicle 6/23/11 Additional articles in the late summer and fall focus on the city and investor plans to initiate the project with the funding received. The project broke ground in late October, 2011 with a greenhouse and aquaculture project.

Massachusetts: The Devens Eco-Efficiency Center launched its eight (8) community regional Household Hazardous Waste Recycling Center in late July, 2011. Many towns hold an annual HHW recycling event. This new center offers increased service (20 days a year) at a reduced price for the participating communities. The State Department of Environmental Protection which funded a portion of the project believes the Devens Regional HHW Facility will serve as a model for other communities in the Commonwealth. The facility is open to residents of the eight towns as well as businesses who are Very Small Quantity Generators of HHW.

Ohio: City of Hudson, Joshua Shutsa and Associates launch eco-industrial park project in Summit County, Ohio. OpenOils, an Irish firm is expected to be the first tenant in the 161 acres site.

Pennsylvania: Dennis Cronin was named COO of Steel Orca, one of the major players in the Keystone Eco Industrial Complex located in Bucks County on the grounds of the former Fairless Steel Plant.

New York: Ithaca South Hill Civic Association goes on record in support of Eco village with national clean tech commercialization center and combined heat and power for the former Emerson property on South Hill.

COUNTRY: Thailand

The Bangkok Post ran an article about Ma Tha Phut's industries' efforts to engage with the community through outreach and community involvement programs as part of their program to move from being eco industrial estates to eco industrial communities.

COUNTRY: Malaysia

COUNTRY: United Kingdom

NISP released a press release published our last section update regarding their expansion into the EU. For a full text of the release go to <http://www.nisp.org.uk>/Congratulations to Peter Laybourn and the entire NISP team! NISP model will become the standard waste initiative program for the EU's 27 member states.

Recycling Today Magazine article on NISP and its role in linking difficult to recycle materials to the production of new products this fall.

Invest Northern Ireland has been working to sponsor a number of industrial symbiosis workshops during the fall showing that businesses have saved over 5 million pounds in the region.

COUNTRY: Australia

The Hunter Industrial Ecology Park is an \$425 million investment on track for a 2013 opening. Being spearheaded by a management team from Weston Aluminium, the park will be a first in Australia not only in terms of resource recovery, but could lead to the recycling of products that are not currently being recycled and see only 5% of C&I waste going to landfill." From the Inside Waste Weekly website and the blog of Corrine Brown.

COUNTRY: China

China Solar & Clean Energy Solutions, Inc signed a contract with Guizhou Fuxiang Eco-Industrial City Investment & Development to construct green eco-buildings within the Eco-industrial city.

TEDA ranked best national development zone in China for 14th consecutive year.

Congratulations! TEDA will be hosting the Industrial Symbiosis Research Symposium next fall before the ISIE Asia Pacific conference in Beijing.

COUNTRY: Sweden

Michael Martin has recently published a case study on the unique bioenergy symbiosis on the island of Händelö in Norrköping, Sweden. The abstract is available from the ISIE Conference proceedings.

COUNTRY: Philippines

Palo. The City of Palo has been proposed to become an EcoTown by the Environmental Bureau of Visayas.

COUNTRY: Vietnam

COUNTRY: Canada

Sherbrooke, Quebec Eco-Industrial Park Valoris is now advertising its park on the web.
Fort MacMurray, Alberta In a recent press release the Wood Buffalo Housing and Development Corporation continues its efforts to green development in the burgeoning industrial region. They highlight the Targa Nova Eco Industrial Park as amongst their successes.

Southgate, Ontario citizen's group calls for more transparency in development of Dundalk Eco Park which, according to newspaper sources, is under agreement with Lystek to develop as an "organic materials recovery center" or waste processing plant.

COUNTRY: Switzerland

COUNTRY: Norway

COUNTRY: Denmark

COUNTRY: Brazil

COUNTRY: Japan

On June 22, 2011, Ajinomoto Co., a major Japanese food and seasonings manufacturer, announced that in March, 2011, it began supplying Kawasaki Biomass Power Station (Kawasaki Ward, Kawasaki City) with soybean residue (humus) generated in the production process of liquid seasonings, the main products manufactured at its Kawasaki Plant (Kawasaki Ward, Kawasaki City, Kanagawa Prefecture).

<http://www.japanfs.org/en/pages/031241.html>

The mayors of Japanese eco-towns, Kitakyushu and Kawasaki, Kenji Kitahashi and Takao Abe, as well as the deputy mayor of Yokohama, Takashi Komatsuzaki, and the Vice Chairman of the People's Committee of Hoi An (Viet Nam), Truong Van Bay, presented the achievements of their respective cities, which serve as a clear demonstration of the diversity of approaches local governments can take to promote Green Industry at the Green Industry Conference in Tokyo this November. Professor Hung-Suck Park also presented a case study of Ulsan EIP as part of the Eco efficient and Sustainable Urban Infrastructure in Asia and Latin America program.

COUNTRY: Germany

COUNTRY: Hungary and Slovakia

COUNTRY: India

Tirapur, Tamil Nadu Professor Suren Erkman highlighted the importance of Industrial ecology where developing countries could balance their industrial growth on the basis of the ground ecological conditions at a talk given in the region.

The Resource Optimization Institute recently placed its 2010 Activity Report on its web site. Megna Shenoy, the Director of ROI, invites IS colleagues to visit her web site regularly to monitor the Institute's continued progress.

Tirupati and Shimla have been selected by UNIDO for an Eco Tourism hotel labelling program.

COUNTRY: Trinidad and Tobago Complaints continue about the slow pace of development of Eco Industrial Development Company of Tobago (E-IDCOT) eco industrial park project in the local papers.

COUNTRY: Romania

ECOREG is a pilot project aimed at testing the applicability of Industrial Symbiosis in Romania. This entails the reuse of resources and by-products used in one production cycle into another, thus creating mutually beneficial partnerships between companies in various sectors. NISP is partnering with the Ecological Group for Cooperation – GEC Bucovina in an EU Life + Programme funded project.

COUNTRY: Singapore The Singapore Institute of Manufacturing Technology (SIMTech), a research institute of the Agency for Science, Technology and Research (A*STAR), is taking on the challenge of green manufacturing by spurring R&D collaborations on remanufacturing technologies with Nanyang Technological University (NTU) and National University of Singapore (NUS) as well as launching initiatives to grow eco-friendly industries. Investing in 10 New Projects in Remanufacturing Technologies.

COUNTRY: South Africa eMalahleni, the firm AngloAmerican is building housing using eco-friendly bricks made from gypsum by-product from their manufacturing process.

Sasolburg: “Phase 1 of Eco Industrial Park opened 31 October 2011 in Sasolburg, to provide a reliable supply of utilities, support services and infrastructure, to ensure an environment that is conducive to successful production, logistics and marketing.

Sasol's enterprise development vehicle, Sasol ChemCity has aligned and integrated the development with the Metsimaholo and Fezile Dabi municipalities' integrated development plans, which aim to stimulate the local economy through sustainable job creation opportunities and attracting investment into the area. The multi-million rand site will ensure the occupants receive the benefits of a conventional industrial park with an additional benefit of being environmentally friendly.”

European Union: MEID PROJECT FOR GREENER INDUSTRIAL AREAS

(ANSAMED) To make industrial areas greener, make them more competitive, more cost-effective and efficient thanks to sound environmental practices: that is the aim of Mediterranean Eco Industrial Development (MEID), a European project which is part of the Union's Med, Europe in the Mediterranean programme promoted by the European Commission and funded by FESR.

The sustainability of industrial areas plays a key role in the EU's development strategy, as laid out in the Goteborg summit. The project brings together 11 partners including 6

countries (Italy, Spain, France, Greece, Malta and Bosnia Herzegovina). The leader is Italian: Enea (national body for new technologies, energy and sustainable economic development) will act as coordinator. The project's top guideline is development in goods rail mobility. The guidelines also include the spread and use of renewable energy, recovering water used to wash streets and the presence of green areas dedicated to citizen and worker services.

EU Establishes Resource Efficiency Roadmap in preparation for RIO + 20 Conference next Spring.

Professional Changes and Opportunities:

Paul Elkins, professor of energy and environmental policy and chairman of NISP, has been named a judge for the Guardian Newspaper's 2012 Sustainable Business Awards.

Announcement from USEPA:

Greetings from DC, and thanks for the EID industrial symbiosis update!

Every year I receive several requests from academic institutions (mostly from overseas) for EPA's "Designing Industrial Eco-systems Tool" (DIET) and the search-and-match data base, "Facility Synergy Tool" (FaST) which apparently still come up on internet searches. The final versions of these tools were released in November 1999. They run on Windows 95 and 98, so they are outdated and probably don't function. No doubt the development of decision support tools to match inputs and outputs has continued to evolve. Could you please point me to someone knowledgeable (perhaps you or some of our cc'd eco-industrial development colleagues) to whom I could refer them?

With kindest regards,
Suzanne

Suzanne Giannini-Spohn, Ph.D. USEPA