ISIE Spring 2013 New sletter

ISIE News Volume 13, Issue 1 International Society for Industrial Ecology



Dear ISIE Members.

Happy Spring Time ISIE community,

We are pleased to deliver you the latest ISIE newsletter in its new and improved format.

Although it took a bit longer this time, it was worth waiting. You will find a lot of exciting items in the newsletter, including letters from the outgoing and incoming presidents of ISIE.

As always, we hope you find this newsletter informative and we look forward to seeing you all soon in South Korea this June.

All the best. Melanie and Vered



A letter from outgoing ISIE President, Greg Keoleian, Ph.D.:





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Two years serving as president elect and two

years as president of ISIE have flown by quickly. I have enjoyed working closely with Roland Clift in his capacity as past president and as executive director. We owe a special thanks to Roland for the tremendous amount of time and energy he has devoted to ISIE. He has been a pleasure to work with and we all have benefited a great deal from his leadership! I also wish to thank members of the Council for their many contributions including outgoing members: Tsuyoshi Fujita and Helga Weisz.



I am pleased that over the past couple of years we have improved the overall "sustainability" of ISIE both financially and also in terms of its management and operations. The ISIE budget is healthy. The large revenues from the biennial conference at Berkeley have strengthened our operating funds. I again express our appreciation to Arpad Horvath for hosting this conference and accommodating our largest audience to date. ISIE has shown amazing growth through the existing and newly formed Sections: Eco-industrial Development, Socio-Economic Metabolism, Sustainable Urban Systems, Organizing Sustainable Consumption and Production, Environmental Extended Input Output, and Life Cycle Sustainability Assessment. The hard work of our Sections Leads: Peter Lowitt, Anu Ramaswami, Arnold Tukker, Daniel Mueller, Heinz Schandl, Frank Boons and Jeroen Guinee is greatly appreciated.

This past year we focused on developing the first strategic plan for ISIE. The document provides a framework to develop and prioritize goals, enhance services to members, and more effectively allocate our resources. This plan is designed for internal use as a prompt sheet for the Society's Council, rather than for communicating to external stakeholders, but a few key elements are worth highlighting. One key **Goal** is to continue to support young professionals in academia and industry, essential for a developing trans-disciplinary approach.

We plan to grow **Membership** at a modest rate while maintaining a community environment through the further development of our existing sections which includes targeting industry practitioners through section activities. One critical need under **Governance** is that Roland Clift has indicated his plans to step down as Executive Director no later than June of 2015. ISIE welcomes your suggestions on candidates for serving in this important position. You may be interested? We also identified potential new initiatives to pursue in **Activities and Services**, **Awards**, and **Communications**.

Over the last two years ISIE has enhanced several documents to improve governance and operations including guidelines for Sections, bylaws, nominations and elections, and biennial conference site selection and budgeting. Special thanks for Roland and Melanie Quigley for accomplishing this work. We are very indebted to Melanie for her excellent work in managing the Yale ISIE Office and the Society's day to day operations and for Heather Shaw assisting Roland in his Surrey Office. Also special thanks to Vered Blass for her work as editor of the ISIE newsletter.

Finally, I see a bright future ahead for ISIE under the leadership of Marian Chertow, our new President! Marian is highly networked with our membership and has been a leader in promoting industry ecology through her scholarship and in organizing international workshops and events. Over the past few years we have focused internally in strengthening ISIE. I'm excited to know that Marian plans to focus a great deal of energy raising the profile and visibility of ISIE externally. Best wishes to Marian, Roland, Melanie, and the Council in your efforts to continue to promote ISIE and the great work of the ISIE Sections and our members!

Greg Keoleian, Past President

A letter from incoming ISIE President, Marian Chertow, Ph.D.:

Dear friends and colleagues in industrial ecology:

On January 1, 2013 Prof. Greg Keoleian (University of Michigan) passed the torch of the ISIE presidency from his hands to mine. Greg worked hard and got us to a new place during his term: financial and membership stability. These are great accomplishments for our still young organization – year #12 – and it means that Greg's successors can dream on without having to worry quite so much about the basics. Greg, it has been a great pleasure to serve on the ISIE Council with you and know that you still serve officially as "immediate past president" – a long title for a sage role.

Greg was gracious (and accurate!) in his praise for his immediate past president, Roland Clift (University of Surrey). Roland subsequently took on the Executive Director's role from John Ehrenfeld (MIT) and, like John, has proven to be both an intellectual and management leader. Let me tell you, for example, about planning for our 2013 biennial meeting. Roland has put enormous energy in laying the groundwork for our ISIE 2013 meeting in Ulsan. He has visited colleagues in Korea and China, sensibly and sensitively pulling together a financial and operations plan with Conference Director Prof. Hung Suck Park of Ulsan University as well as organizing a technical committee with over 60 members. Melanie Quigley (ISIE World Headquarters!) has brought the same friendly and tireless effort to Ulsan planning that she has to every other part of her role as Administrator of the ISIE Secretariat. Dr. Jooyoung Park (Yale) is liaison between ISIE and Ulsan and has brought our efforts together including fixing the abstract submission program in the middle of the night and acting as the perfect cultural ambassador by day. In Ulsan, Prof. Park, with input from his partners in

China and Japan and throughout Korea, is putting both the organizational effort and the sparkle to our first Asian biennial meeting. Our ISIE community is strong. The Gordon Conference chaired by Prof. Sangwon Suh (UC-Santa Barbara) in the beautiful Swiss Alps in June 2012 allowed industrial ecologists to take a broader view of the world around us. I was also wowed by the ISIE Asia Pacific meeting in Beijing in November 2012 with the great



Here I would like to present a little bit more about my agenda for 2013-2014 and send additional details to each of our members soon. I think industrial ecology has made many excellent research contributions in the last twenty years. While we have continuously shared results in journals and among ourselves, however, I do not think that is enough. So I wish to devote much effort to getting out the word about industrial ecology in a variety of academic, business, government, and NGO venues. I am planning to make membership-related trips to India and Colombia during my term. I would also like us to publish some works aimed at broader audiences and am trying to line up interested publishers. I think we need to look back and fit our intellectual contributions into the useful contexts we can now see through the passage of time. And, of course, in a very competitive marketplace of ideas, we need to take credit for these accomplishments, too, so we can continue to build on what has come before.

To accomplish even some of these large tasks, I need your help. Please send me your thoughts and ideas so I can factor them into the broader mix of goals and objectives we have over the next two years. E-mail is best at <u>marian.chertow@yale.edu</u>. I look forward to communicating more frequently and, of course, to seeing as many people as we can muster for Ulsan in June 25-28 for ISIE 2013. Finally, Greg thanked our Council members whose terms had expired, so I want to welcome the newly elected team and especially President-Elect Chris Kennedy (University of diversity of research and also the great warmth among the attendees expressed at two lovely group dinners. Special thanks to Prof. Shi Lei at Tsinghua and Prof. Shi Han at Hong Kong City University for a very worthwhile event. And, as I said in my plenary, as we consider the future, the systems approach of industrial ecology is needed more urgently than ever. Toronto) who will serve as President from 2015-2017. The new Council members are: Treasurer Fausto Freire (University of Coimbra, Portugal), Secretary Anthony Chiu (De La Salle University, Philippines), Members Hung Suck Park (University of Ulsan, South Korea), Julia Steinberger (University of Leeds, U.K.), and Ming Xu (University of Michigan, USA). New members of the Nominating Committee are Helge Brattebo (NTNU, Norway) and Shi Han (City University of Hong Kong).

Best regards,

MC February 26, 2013

ISIE Sections Update

Life Cycle Sustainability Assessment (LCSA) section update, Jeroen Guinée

The LCSA section is getting more and more alive and kicking. After the Berkeley kick-off meeting, now almost two years ago, members have been recruited first.

The LCSA section now almost has 60 members. After that, Greg Norris and Jeroen Guinée developed a working plan for the period 2012-2014. Inputs for this working plan were provided by several members of the section.

The two main pillars of the working plan are a virtual communication platform and topical activities. For the virtual communication platform we would like to adopt Google+ as it is free and has been successfully used already by the OSCP section.

The progress on this is not yet what we would like to see, but "we're working on it". Actually, we're looking for skilful members that could help us setting up this virtual platform further as we currently have a lack of time to really progress this.

With respect to topical activities, we are pleased to announce that Anne Ventura has started leading a topical activity group on "unresolved environmental LCA issues in the construction sector". According to Anne's description the idea is to collectively develop a position paper on critical issues and specificities of LCA applied to this sector.

The group currently exists of 8 members. Please contact Anne Ventura In the first decade of the 21st century, life cycle thinking and formal LCA continued to grow in importance: In Europe, LCA was incorporated into "Integrated Product Policy", the thematic strategies on the Sustainable Use of Resources and on the Prevention and Recycling of Waste, and other policy initiatives; in the US, EU, and Canada, several life cycle-based carbon footprint standards and regulations for transportation fuels were established.

However, shortly after LCA began to be used to inform policy making, some researchers and practitioners began to question the validity and usefulness of results from LCA. In particular, the use of LCA in performance-based regulations (PBRs), such as in the European Renewable Energy Directive and California's Low-Carbon Fuel Standards raised some serious questions with respect to the robustness and reliability of LCA results.

For example, some of these PBRs adopted attributional LCA, others consequential LCA, and others a hybrid of these approaches, resulting in different ratings and even altering preference orders for transportation fuels. In addition, most regulations lack reporting requirements on the uncertainty of the LCA results and subjective choices by the LCA practitioner, which can result in LCA results seeming more certain and scientifically objective than they really are.

Recently, a debate was initiated within the Life Cycle Sustainability Assessment (LCSA) community of the International Society for Industrial Ecology (ISIE) on the benefits and (anne.ventura@univ-nantes.fr) if you would like to learn more about this activity.

Future plans of the section include setting up more topical activities, having an LCSA session at the biennial ISIE conference in Ulsan next June, and an LCSA session at the SETAC Case Study Symposium (SETAC CSS), 11-13 November 2013, Rome (Italy) which we are currently preparing.

The description of this session is derived from a recent e-mail debate between several LCSA section members and is provided below. We are very happy to co-organise the SETAC CSS 2013 in this way and we hereby acknowledge Alessandra Zamagni and Paolo Masoni from the SETAC organisation committee for creating this opportunity. We hope to see many of you at this occasion!

Session title: Experiences with and criticisms of LCA as a tool for supporting policies and (bio-energy) performance-based regulation

Since the early 1990s, life cycle assessment (LCA) has increasingly been applied to support public policy making. For example, during the 1990s, LCA was used to support eco-label, certification schemes, policy documents, and packaging legislation in Europe, and to guide the development of alternative-fuel policies in the US.

limitations of applying LCA to support design of such public applications. The debate is rooted in the "ISIE approach" towards LCSA, broadening and deepening traditional environmental LCA into a more comprehensive LCSA.

LCSA in this approach is a trans-disciplinary framework for integration of models rather than a model in itself. The main focus is structuring, selecting and making the plethora of disciplinary models, including traditional LCA, practically available for application to different types of life cycle sustainability questions. How this ISIE approach towards LCSA can be applied to support public policy making is another question of interest to the community.

This session invites abstracts addressing experiences with the application of LCA for supporting policies and performance-based regulations. Both case-study based experiences and review-based experiences are welcomed. Moreover, abstracts are welcomed evaluating the role of attributional and/or consequential approaches to LCA (usefulness, limitations, neglected issues, etc.) and presenting alternative broader life-cycle based approaches for supporting such public applications.

URBAN FUTURES: REFLECTIONS POST RIO +20

The Sustainable Urban Systems (SUS) section held a joint workshop with the UNESCO Man and the Biosphere Programme at UNESCO, in Paris, from June 25-26, 2012. The timing of the meeting provided opportunity to reflect on the role of cities in addressing global environmental challenges following the Rio+20 conference. Similar to previous SUS workshops (MIT, 2010; and Berkeley, 2011) attention was given to the intersection of research and policy. Several presenters from UNESCO, UNEP and OECD were amongst the forty attendees.

Day 1 began with some broad perspectives on Rio +20, and other concurrent conferences. Xuemei Bai (Australian National University) reported on the ICSU Science, Technology and lan Cochran (CDC Climat) discussed governance challenges for addressing climate change in transportation planning in French cities. Gerard Hegron (IFSTTAR Nantes) noted the variety of parallel scales (watershed, energy utility, political boundaries) that need to be considered when developing policies and tools for greening cities. Clint Andrews (Rutgers) demonstrated how orchestration of multi-level governance was important for sustainable planning initiatives in New Jersey. Larry Baker (U. Minnesota) discussed the governance challenges in developing the adaptive capacity of cities, with examples from the water sector.

The second day began with a session on *Successful Green Cities*. Drawing upon the experience of OECD's green cities programme, David Gierten presented a framework for urban green growth. The framework considers

Innovation for Sustainable Development event in Rio, which included a half day session on Urban Environment and Health she co-convened. She also reflected the general sentiment of disappointment at the overall outcomes of Rio+20. Nonetheless, Peter Dogse (UNESCO) highlighted the many places in which the key role of cities was noted in the Rio+20 agreement. Soraya Smaoun also gave an inspiring presentation on UNEP's new Resource Efficient Cities initiative, which was particularly pertinent to SUS researchers. Helga Weisz (Potsdam) then provided a summary of key points from the excellent Gordon Conference in Industrial Ecology, held the previous week in Les Diablerets, Switzerland.

The second session focussed on the upstream environmental impacts of cities. Chris Kennedy (OECD / University of Toronto) suggested a need to make stronger connections between urban metabolism and planetary environmental systems of concern. Upstream impacts from various example cities were included in presentations by Marian Chertow (Yale University), Leonardo Rosado (IST Portugal), and Larry Baker (U. Minnesota). The session continued after lunch with focus on energy and greenhouse gas emissions. Abel Chavez (UC Denver) presented a framework for understanding the upstream emissions included in carbon footprints of cities, which was well complemented by a case study of Xiamen City presented by Shenghui Cui (Chinese Academy of Sciences). Julia Steinberger (Leeds) and Paul Pichler (Potsdam) discussed the drivers of urban energy use, showing that while climate and urban design impact direct energy use, income is a key determinant of indirect energy use.

There was strong local representation amongst the panellist for the third session on *Governing Green Cities*. Virginie Marchal provided an overview of the OECD's work on climate change and multi-level governance, including a policy framework that encourages mainstreaming of climate concerns into decision making processes at every level.

infrastructure, innovation and human capital as being the key inputs for achieving green jobs, green supply and consumption, and urban attractiveness. Swedish cities, which are know for their green development, were examined by Yuliya Kalmykova of Chalmers University. She discussed goals, policies and sustainability measures for several Swedish cities, suggesting that further benchmarking be undertaken. Paulo Ferrão and Samuel Niza provided an overview of the intellectual journey undertaken by the group at IST Portugal in studying the urban metabolism of Lisbon, in particular discussing the integration of material flows and economics. Socio-economic explanations for differences in municipal solid waste indexes for three cities in south-west Europe were then discussed by Álvaro Gonzalez (Autonomous University of Barcelona). SHI Han (City University of Hong Kong) presented on an interesting research question of whether cities with eco-industrial parks in China are doing better in aspirations to be low carbon cities.

The final session provided some intriguing perspectives on directions for future cities. Natarajan Ishwaran (UNESCO) discussed a new project on integrated rural urbanization, which is attempting to bring city-like amenities to rural regions of China. Tadashi Matsumoto (OECD) presented important work on compact cities, including best practice policies based in part upon 5 case studies. Clemens Deilmann (Leibniz Institute for Ecological Urban and Regional Development) presented on data envelopment analysis (DEA) as a heuristic tool for assessing efficiency; his work on German cities shows that medium-size cities have both economic and ecological advantages over large cities.. An overview of urban metabolism research conducted by the large group from MIT (all in attendance) was delivered by John Fernandez, including work on city typologies, urban resource dynamics, and alternative urban technologies. John also summarized some lessons from the successes and unintended consequences of the green building movement. The topic of urban typologies, which raised good discussion at the workshop, was also central to the presentation of Simon Colman (Autonomous University of Barcelona).



JIE News

A tale of two vehicles Reid Lifset

As industrial ecology continues to connect with public debate and public policy, articles in the *JIE* continue to draw attention and generate interesting and complicated responses. In October, a group of researchers at the Norwegian University of Science and Technology (NTNU) published "Comparative Environmental Life Cycle Assessment of Conventional and Electric Vehicles" in the *JIE*. (It was published online in "Early View" and in print in the first issue of this year, see <u>http://dx.doi.org/10.1111/j.1530-9290.2012.00532.x.</u>)

In their analysis, they found that the production-phase impacts of electric vehicles (EVs) were larger than indicated by previous research and therefore the life cycle burdens of EVs were also larger. This in turn meant that, in the comparison with conventional vehicles regarding greenhouse gases (GHGs) emissions, the relative merits of EVs were more sensitive to the GHG profile of the source of electricity used to power them and thus, under some scenarios, vehicles using internal combustion engines would be environmentally preferable. The authors made a substantial effort to be transparent in their assumptions and to make their data accessible. This was a significant contribution of the article because some of the previous work on EVs relied on proprietary data.

The article received extensive and high profile coverage from *The Guardian*, a prominent national newspaper in the UK (see http://www.guardian.co.uk/environment/blog/2012/oct/05/electric-cars-emissions-bad-environment), and the BBC (see http://www.bbc.co.uk/news/business-19830232). The stories from *The Guardian* and the BBC were picked up by other news sources worldwide and for the month of October, *it was downloaded more than any other article from a journal published by Wiley*.

Much of the first round of news coverage largely repeated the description and discussion from *The Guardian* and the BBC. This was fortunate because those news stories—especially the treatment by *The Guardian*—were thoughtful and largely devoid of sensationalism. Subsequent news coverage ranged from conservative US outlets crowing about the debunking of an environmental icon to local TV news stories to headlines in Israeli newspapers. (Israel is home to a prominent EV service company.)

As the news coverage expanded, the characterization became less nuanced and more sensationalized. The misleading character of the sensationalized coverage led to critical commentary by the highlyregarded <u>Columbia Journalism Review</u>. At the same time, EV specialists began to take notice. In some cases, governments with policies promoting EVs asked researchers to assess the article. In other cases, automotive engineers drilled down into the assumptions. In still others, EV enthusiasts rallied to the defense of their technology.

The results were mixed. The attention of the EV cognoscenti revealed some gaps and flaws in the analysis. In particular, the mass of the electric motor, inverter, and charger were overestimated. The authors engaged in extended discussions with the specialists drawn to their article. The result is a corrigendum now available on the JIE web site (http://dx.doi.org/10.1111/jiec.12011). (Publishing lingo — a corrigendum is a correction of an error by authors; an erratum is correction of errors by the publisher.) The upshot is that the conclusions of the paper did not change substantially. Most of the rankings of life cycle impacts stayed the same including GWP, though the performance of EVs improved modestly. In this respect, the process worked as it should. An interesting and thoughtful analysis was published, relying on transparent and accessible data. Critics were engaged and the analysis was improved. Scientific publishing as it should be...

In a different respect, the process was less happy. Some critics, especially among the EV enthusiasts, attacked the work and attributed the conclusions to bias among the NTNU authors arising from Norway's role as an oil producer and Statoil's activities in Trondheim and with NTNU. This seemed particularly harsh given the high standard of transparency set by the authors. This openness about the details mitigated some of the vituperation, but alas not all of it.

A variety of lessons might be drawn from this tale. My sense, and I suppose I should not have been surprised, was that in the end the message drawn by many news outlets was that research showed EVs to be potentially problematic for reasons well-known in the research community—because of the carbon intensity of some sources of electricity – rather than for what was new: the re-estimate of production-phase impacts of EVs and the transparency of the analysis.

It is clear that being policy relevant is a complicated and difficult task. Being relevant and being taken seriously requires not only good analysis and clear communication, but also a thick skin.

Do you receive the JIE table of contents alerts? If not, be sure to sign up to receive these emails or RSS feeds so that you always have the latest in industrial ecology research.

IE News from around the world



Workshop on Chinese LCA Database Development and Roadmap Global Guidance Principles for LCA Databases and Chinese Guidelines

The workshop was held on Nov. 18-19th, 2012 in Beijing, co-organized by Chinese Society of Environmental Sciences, Sichuan University and UNEP/SETAC Life Cycle Initiative. There were more than 110 participants from more than 40 Chinese universities, institutes and companies.

The workshop has invited five authors of the UNEP/SETAC "Global Guidance Principles for LCA Databases" to present the common principles and methods for development of LCA databases. Speakers from five leading Chinese database groups were also invited to introduce the ongoing database development in China.

Participants have discussed two reports on "Guidelines for Development of Chinese LCA Databases" and "Roadmap of Chinese LCA Databases", which will be prepared for public consultant shortly after. And all Chinese participants agreed to establish a network for LCA research in China. A work team and work plans were discussed too.

All workshop information will is available at: <u>www.clcm.org.cn</u>. For any further questions, please feel free to write to <u>clcm.conf@gmail.com</u>



9th and 10th International Conference on Business Innovation and Technology Management

Two events of the International Society for Business Innovation and Technology Management were held from November 2012 to Jan 2013 in Manila and Taipei. Giving the opening talk in both events, Prof. Anthony SF Chiu, President of ISBITM, shared innovative sustainable business models in support of sustainable production and consumption that he has encountered over the years of his international expertise on SCP. In addition, Prof. Dr. Chiu encouraged the attendees, mostly from business schools and government, to collaborate and further enhance business and industry R&D towards sustainability.

The events were graced by Prof. Joseph Sarkis, whose reappearance in the conference was very much welcomed. Delivering the keynote speech, Prof. Sarkis of Clark University shared his thoughts on carving pathways towards sustainability. Dr. Vered Blass (Israel), Dr. Xue Bing (China), Dr. Tang (Sweden) and many other key researchers in the field presented various papers in industrial ecology, green economy, green growth, and corporate social responsibility.

In anticipation of the upcoming ISBTM Conference in the UK in midyear, Prof. Ming Lim (Derby University) and Prof. Kim Hua Tan (Nottingham University Business School), led plenary talks on their respective specializations in RFID, Supply Chain Management, and on Information Management.

Upcoming conferences

International Conference on Resource Efficiency in Interorganizational Networks Since renewable materials are used both in the manufacturing and in the process industry, the

Call for Papers

On 13th and 14th November 2013, the Georg-August-Universität Göttingen (Germany) will host the first International Conference on Resource Efficiency in Interorganizational Networks (ResEff).

Renewable raw materials are becoming increasingly important as an alternative resource base in industrial networks. Consequently, research for methods improving the efficient use of renewable resources in production processes with by-products is crucial. The aim is cascade utilization, thus the multiple utilization of a raw material before its conversion into energy.

The ResEff brings together interdisciplinary researchers developing strategies and solution concepts for efficient resource utilization. It is therefore a forum for scientific exchange both between experts as well as interdisciplinary groups. The following facets of the challenging topic of resource efficiency in interorganizational networks are covered:

Track A: Materials and Technologies o Characterization of Fibres and Particles o Supply Chain of Renewable Resources o Usage of Cell Wall Components, esp. Hemicelluloses

Track B: Planning of Production and Value-Added Networks for Renewable Resources

o IS and IM in Value-Generating Networks for Renewable Resources

o Mathematical Optimization in the Presence of Uncertainties

o Modeling of Production and Logistic Systems

Track C: Governance, Coordination and Sales o Consumer Behavior towards Eco-Friendly Products

o Distribution of Intermediate and End Products from Renewable Resources

The conference will include parallel sessions for presentation of papers in the fields of agricultural and forestry science, mathematical optimization, operations research, marketing, business informatics, production and logistics. Each track contains different sessions for expert talks. The interdisciplinary exchange is fostered production of renewable resources has been increased significantly in recent years. Adapting the planning and design of production and logistics systems to the characteristics of renewable materials is a difficult and complex task.

Variations in the quantity and quality of the materials lead to uncertainties and imprecision, which have to be considered in the modeling and optimization. Additionally, varying preferences of the participating companies within the supply chain network require a multicriteria analysis to support decision-making processes.

Within this context the track is dedicated to research on theoretical analysis and applications concerning production and logistics systems with renewable resources. The track is a forum for presenting results of the international research and development work dealing with multi-criteria decision making, the modeling and optimization of logistic networks as well as the handling of uncertainties in production induced by the utilization of renewable resources.

Topics of interest include, but are not limited to:

□ Modeling logistics network for renewable resources

- □ Risk potential in biomass supply chains
- □ Biomass logistics under uncertainty
- □ Multi-criteria decision making

The deadline for submission of abstracts (approximately two pages) is 31 May 2013. Guidelines for submission can be found on the conference website.

Submissions are subjected to an independent and professional blind peer review and will be judged on originality, significance, interest, clarity, relevance, correctness and presentation. A more detailed description of the topic and the submission and review process can be found on the conference website.

Important Dates:

31 May 2013 - Deadline for Abstracts
20 June 2013 - Notification of Acceptance
20 June 2013 - Begin of Registration
15 Sept 2013 - Camera Ready Deadline
13-14 Nov 2013 - ResEff

Contact

reseff2013@uni-goettingen.de

through special talks and meetings, where all groups come together.

More information about the organizing DFG Research Training Group 1703 "Resource Efficiency in Interorganizational Networks" is available on the website www.resourceefficiency.uni-goettingen.de Website http://reseff2013.uni-goettingen.de

Early Bird Registration for Ulsan 2013 Extended to April 30th

Registration is now open for the ISIE 2013 conference in UIsan South Korea. Because of the registration delay, we have extended the early bird deadline to April 30, 2013. Visit <u>http://isie2013.ulsan.ac.kr/main/</u> to register. Please send any questions or concerns to <u>isie2013@mail.ulsan.ac.kr</u>. Scholarship applications are due to <u>is4ie@yale.edu</u> by April 1, 2013 and can be downloaded at the conference website.

IE Training Programs

Think Holistically – Learning Life Cycle Management in Action

The Joint German-Australian Research Group will host "Think Holistically", a combination of lectures, practical exercises and a business game at the Technische Universität Braunschweig, Germany, July 7 through July 12, 2013. Think Holistically is part of a seven-week summer program for undergraduate students in the fields of Architecture, Bioscience, Business Administration, Computer Science, Mechanical or Electrical Engineering and Physics, paired with intensive instruction in German language and culture. Students will get the opportunity to acquire important professional skills by putting current management theories into action.

Think Holistically will feature lectures on Product and Life Cycle Management as well as the business game "Holistic". During the game students will try to turn bankrupt companies into successful businesses, by reorganizing Product and Production Management, After-Sales Management and End-of-Life Management. Holistic is based on apl. Prof. Dr.-Ing. Christoph Herrmann's concept "Total Life Cycle Management".

Think Holistically will be organized as an activity of The Joint Group Academy, which unites the academic education of students of the Joint German-Australian Research Group (JGARG). The JGARG is a cooperation of the Life Cycle

Contact information

apl. Prof. Dr.-Ing. Christoph Herrmann

Head of the German-Australian Research Group "Sustainable Production and Life Cycle Management" in conjunction with Prof. Sami Kara of the University of New South Wales (UNSW), Sydney

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Further information

Think Holistically: www.think-holistically.com

International Summer Program "SENSE": www.tu-braunschweig.de/international/sense

Joint German-Australian Research Group: www.sustainable-manufacturing.com Engineering and Management Research Group of the University of New South Wales, Sydney, and the Product- and Life-Cycle- Management Research Group of the Technische Universität Braunschweig, Germany.

The International Life Cycle Academy is offering a wide range of specialized LCA courses

Practical Uncertainty Analysis in LCA	March 6-8
Social LCA: The Why and the How	April 8-12
Social LCA: Practical Work with Methodological Sheets	April 8-12
Managing Life Cycle Assessments	April 15-17
The Most Typical Mistakes in LCA and How to Avoid Them	April 17-19
Economic tools in LCA - life cycle costing, external costs	
and cost-benefit analysi	April 24-26
Modelling Indirect Land-Use Changes in LCA	May 8-10
Life Cycle System Modelling	June 10-12
Life Cycle Data Quality and Data Management	June 12-14

The special prices* (at 50% off the regular price) are: 1250 euros per course for Professionals 500 euros for University Personnel 250 euros for Students

Our teachers include:

- Dr. Bo P. Weidema
- Dr. Jannick H. Schmidt
- Dr. Miguel Brandão
- Dr. Vincent Moreau

All courses are held in beautiful Barcelona, Spain at the facilities of the Universitat Pompeu Fabra (ESCI-UPF)

For more information please contact jenna@ilca.es or visit: www.ilca.es

*Prices do not include travel, accommodation or food.*Prices do not include travel, accommodation or food.

NSF Workshop

The Center for Sustainable Engineering (CSE) Workshop will be held immediately following the ASEE National Meeting in Atlanta. The workshop will run from 9:00 am Thursday June 27 to 4:00 pm Friday June 28 at Georgia Tech. The workshop is intended for instructors of engineering courses who wish to include material on concepts and practices of sustainability in their classes. A maximum of 30 participants will be accepted, selected through a competitive application process. Accepted participants must cover their own travel and hotel (reduced room rate available for accepted participants). All meals and workshop materials will be provided without cost. Deadline for applications is April 1.

Information on the workshop and online application are available at <u>www.csengin.org</u>, or contact Carol Stokes-Cawley at <u>cestokes@svr.edu</u>for further information.

Cliff Davidson, Syracuse University John Crittenden, Georgia Institute of Technology Brad Allenby, Arizona State University

Open Positions

Postdoctoral Research Fellow

University of Toronto

Applications are invited for a full-time Postdoctoral Research Fellow to study the metabolism of megacities. This position is part of a collaborative project with the Enel Foundation.

The candidate will conduct research on the energy and material flows of cities and help produce a road map towards sustainable development of megacities. The research will entail review of literature, development of a survey, statistical analysis, and potentially use of an urban systems model. In addition to research responsibilities, the candidate will take a leadership role on the project as a coordinator of a megacities research network.

Candidates should hold a Ph.D. in Civil Engineering, Geography, Regional Science, Environmental Science, Industrial Ecology (or related fields) and have demonstrated expertise in at least one of the following areas:

- 1. Material and Energy Flow Analysis
- 2. Statistical Analysis
- 3. Systems Modelling
- 4. Urban Planning
- 5. Greenhouse Gas Accounting

Candidates should have excellent oral and written communication skills in English.

Applicants should send a cover letter, detailed CV, one page statement of research experience and interests, and names and contact information of three references to Professor Chris Kennedy (christopher.kennedy@utoronto.ca).

The review of applications will begin on April 1, 2013 and will continue until the position is filled.

Research opportunity at the University of Calgary

Uncertainty and variability are inherent in assessing new technologies. However, there is currently no comprehensive tool or framework available to evaluate new energy technologies from a life-cycle perspective that addresses the sources and nature of uncertainty and variability in a quantitative and rigorous manner. The overall objective of the proposed research is to better understand and incorporate assessments of uncertainty and variability into life cycle assessments focused on applications in the petroleum industry. The postdoctoral scholar will build on work already underway within the Life Cycle Assessment of Oil Sands Technologies project and will contribute novel insights related to the role that uncertainty and variability play in the assessment of emerging energy technologies.

The research will include three distinct deliverables:

- 1. Assessment of the implications of uncertainty and variability in understanding the heterogeneity across in-situ oil sands applications using detailed well-pair level data of reservoir properties and bitumen production;
- 2. Distinction between variability and uncertainty in refineries in North America in the context of a shift to heavier feedstocks; and
- 3. Comparison of the degree and nature of variability and uncertainty in life cycle estimates of different crude oil products (e.g., from different regions of the world, conventional vs. unconventional).

This research will deliver novel methods and tools to assess energy innovations to ensure that the goals of innovation are achieved, that R&D funding and investment decisions are better informed and that unintended consequences are minimized (e.g., decreasing GHG emissions at the point of extraction only to increase emissions at the point of use).

This position is part of a 60+ postdoc recruiting effort at the University of Calgary and includes a campus-wide professional development program for the postdoctoral scholars.

Research position available at the University of NSW, Sydney

February 2013

A researcher is required to manage and work on a number of research projects and deliver according to existing contracts in the areas of sustainability and life cycle assessment (LCA). The purpose of this position is to advance LCA methodologies and their application in government and industry sectors, and to incorporate sustainability thinking and sustainability tools into higher-level decision-making and policy frameworks. The position is initially limited to one year.

The appointee at this level is expected to manage and work on the current projects of the Sustainability Assessment Program including the new Industrial Ecology Virtual Laboratory and provide strategic direction. The researcher will work independently and ensure on time delivery of project tasks and reporting and other deliverables of research and applied research projects.

An appointee at this level will usually have strong tertiary qualifications in environmental engineering or a related field. The candidate should have a sound technical ability and experience working with quantitative data as evidenced by their prior academic publications and/or technical reports. Programming skills are essential. The candidate would ideally have some years of experience in the development or application of LCA or another quantitative sustainability assessment method. Experience in environmentally extended input-output analysis would be highly regarded. The candidate should have excellent written and oral communication skills, an ability to manage new and existing research projects, and possess or show willingness to develop good working relationships with researchers in the relevant field.

For further information on the position please contact Tommy Wiedmann, UNSW, via email <u>t.wiedmann@unsw.edu.au</u>.

Details of the position have been posted here on 15 March 2013: <u>https://www.hr.unsw.edu.au/services/recruitment/jobs/15031304.html</u>

Research Assistant / Associate in Material Efficiency in Construction http://www.jobs.ac.uk/job/AGE927/research-assistant-associate-in-material-ef

ficiency-in-construction/

Research Assistant / Associate in Material Efficiency in Manufacturing http://www.jobs.ac.uk/job/AGE952/research-assistant-associate-in-material-ef ficiency-in-manufacturing/

Research Assistant/Associate in Economic Analysis of UK Energy Futures <u>http://www.jobs.ac.uk/job/AGE987/research-assistant-associate-in-economic-an</u> <u>alysis-of-uk-energy-futures/</u>

Research Assistant/Associate in Whole Systems Analysis of UK Energy <u>http://www.jobs.ac.uk/job/AGE989/research-assistant-associate-in-whole-syste</u> <u>ms-analysis-of-uk-energy/</u>

Research Assistant/Associate in Water/Land Linkage to UK Energy System <u>http://www.jobs.ac.uk/job/AGE991/research-assistant-associate-in-water-land-linkage-to-uk-energy-system/</u>

Research group at Rochester Institute of Technology receives grant to develop new IE models:

Callie Babbitt and Eric Williams, faculty in the Golisano Institute for Sustainability at RIT, will team up with Christy Tyler, an ecologist and faculty in the School of Life Sciences at RIT, to adapt conceptual and mathematical models from the field of community ecology to be used to advance industrial ecology studies.

The \$300,000 grant from the National Science Foundation, *"Evaluating Sustainable Production and Consumption Dynamics in Complex Product Systems"* will be led by Babbitt and will focus on modeling the structure, function, and attendant material and energy flows associated with entire communities of consumer electronics owned by U.S. households.

The approach differs from past life cycle-based approaches focusing on a single electronic device – like a computer – and instead seeks to analyze the cumulative environmental impact that reflects how groups of interacting products are purchased and used in interdependent ways. In addition to identifying opportunities to minimize the environmental footprint of consumer electronics, the study also aims to develop new IE models that are founded in community ecology and translatable to other complex product systems.

Members' News

Collaborative Research Project on the Analysis and Evaluation of the Environmental Performance of Electric and Plug-in Hybrid Vehicles in Everyday Use on the Example of Fleet Operations (FLEETS GO GREEN)

In the fall of 2012 the Automotive Research Centre Niedersachsen of the Technische Universität Braunschweig started the joint research project "Fleets Go Green" in The analysis of the vehicle, user and power supply system behavior is transferred to a system dynamics model that depicts the interactions in fleet operations. Subsequently, the modeling of energy and material flows is done to enable the LCA of electric vehicles. Based on this, a multi-criteria decision support for the exchange of conventionally powered vehicles with alternative powertrain vehicles in corporate fleets is developed.

Fleets Go Green is a three year research project

collaboration with BS|ENERGY, the Fraunhofer Institute IFAM, the Volkswagen AG, and further partners. The aim of the project is to conduct a comprehensive analysis and evaluation of the environmental performance of electric and plugin hybrid vehicles in everyday use on the example of fleet operations.

To this end, a part of the corporate fleet of the company BS|ENERGY is replaced by electric vehicles. The first vehicles were already purchased in November 2012. 25 to 50 further vehicles will be added until the summer of 2013. Furthermore, the Technische Universität Braunschweig will establish a pool concept for scientific and student employees with four vehicles in collaboration with Lautlos durch Deutschland. The interdisciplinary cooperation of the partners allows for conducting a Life Cycle Assessment (LCA) of electric vehicles in fleet operations.

The LCA part of the project has been entrusted to the Product and Life Cycle Management Research Group of the Institute of Machine Tools and Production Technology (IWF). with a budget of 4.6 million Euros. It is funded by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) with total grants of 2.8 million Euros. The project coordination for Fleets Go Green is done jointly by BS/ENERGY and the Automotive Research Centre Niedersachsen. Paul Anfang, Vice Chairman of BS|ENERGY, underlines the importance of the cooperation for Fleets Go Green: "As a modern energy provider it is our job to show ecological and economic benign ways of energy usage in the transportation sector. We are pleased that we are able to do this intensive research on the practicality of electric vehicles in a large-scale fleet test together with the partners of the consortium. We have set ourselves the goal to bring electric vehicles a decisive step forward."

Contact:

Dipl.-Wirtsch.-Ing. Mark Mennenga, M.Mennenga @ tu-braunschweig.de http://www.fleets-go-green.de/

New publication "Transition Towards Energy Efficient Machine Tools" in Springer Series "Sustainable Production, Life Cycle Engineering and Management"

A third title has recently been published in the Springer series "Sustainable Production, Life Cycle Engineering and Management" edited by Prof. Sami Kara (UNSW Sydney, Australia) and Prof. Christoph Herrmann (TU Braunschweig, Germany). This series focuses on the issues and latest developments towards sustainability in production and is based on life cycle thinking.

A cost-effective strategy of a sustainable development is energy efficiency. The improvement of energy efficiency is however confronted with diverse barriers, which sustain an energy efficiency gap of unexploited potential. The deficiencies lie in the lack of information about the actual energy requirements of machine tools, a minimum energy reference to quantify improvement potential and the possible actions to improve the energy demand.

The new title "Transition Towards Energy Efficient Machine Tools" by Dr. André Zein provides a comprehensive concept for energy performance management of machine tools which guides the transition towards energy efficient machine tools. It contains unique data about industrial trends affecting the energy demand of machine tools and shows a comprehensive methodology to assess the energy efficiency of machining processes.

André Zein presents an integrated management concept to implement energy performance measures into existing industrial systems and furthermore includes an industrial case study with two exemplary applications from an automotive manufacturing environment.

New Book: Long-Term Socio-Ecological Research (LTSER): How to Study Society – Nature Interactions Across Spatial and Temporal Scales. Edited by Simron Jit Singh, Helmut Haberl, Marian R. Chertow, Michael Mirtl, Martin Schmid, Springer, 2013. Over the last half century, exceptional changes in the environment have placed renewed importance on the study of society-nature interactions. Around the globe, ever increasing human demands on ecosystems not only harm the environment, but also induce great potential for social conflict. In this sense sustainability problems are not only "ecological" but "socio-ecological" since the ways societies interact with the environment affects both ecosystems and social systems.

The emerging interdisciplinary field of Long-Term Socio-Ecological Research (LTSER) is primarily concerned with questions of global environmental change and sustainability. It aims to conceptualise, observe, analyse, and model changes in coupled socio-ecological systems over generations. Tracking these changes over extended periods is accomplished in research traditions that include social and human ecology, industrial ecology, environmental history, human geography and anthropology. LTSER aims to provide a knowledge base that helps reorient socioeconomic trajectories towards more sustainable pathways. The authors of the just published volume to be presented this evening make a case for

LTSER's potential in providing insights, knowledge and experience necessary for a sustainability transition. Contributions from Europe and North America review the development of LTSER since its inception and assess its current state. Through many case studies, this book gives the reader a greater sense of where we are and what needs to be done to engage in and make meaning from long-term, place-based and cross-disciplinary engagements with socio-ecological systems.

For more information: <u>http://www.springer.com/environment/sustainable+development/book/978-94-007-1176-1</u>

1) Introduction to LCA / Goal and scope of LCA

Submissions for this topic can include the definition and purpose of LCA, its context and relation to other assessment techniques, discussion of relevant definitions (e.g. of sustainability and environment), application areas and examples, the ISO standards and other relevant guidelines and definitions, the iterative nature of LCA, considerations of goal and scope, the decision situation to be supported, and its consequences for the definition of the functional unit, methodology, system boundaries, impact categories, etc. Submissions under this topic may also include procedures for defining the functional unit, interaction with commissioners and stakeholders and for critical review, but does not cover other procedural aspects of LCA (since these are covered by the following topics).

2) System boundaries

Submissions for this topic can include definitions of product systems and system boundaries, examples, justifications and other issues of cut-off rules, boundaries between product systems, temporal and spatial boundaries, and those between the technosphere and the environment.

3) Attributional and consequential modelling

Submissions for this topic can include definitions of attributional and consequential modelling, the description of these approaches in different standards and guidelines, the differences between these approaches in terms of application areas, their procedures for definition of functional units, linking of processes, and handling of co-production, application examples and issues of communication.

4) Data and data sources

Submissions for this topic can include definitions and rules for description of unit processes, data sources, data gaps, combining of data sources, data formats, data quality and error finding. The topic does not cover calculation routines, since this is a separate topic (topic 6).

5) Scenarios and forecasting

Submissions for this topic can include definitions and classifications of methods for qualitative and quantitative forecasting and scenarios, application examples, discussions of consistency and quality in forecasting, and the relevance of forecasting of different parts of an LCA.

6) Calculation routines

Submissions for this topic can include the applied mathematical basis for calculations in LCA software, e.g. matrix algebra, and practical calculation exercises with spread-sheets and dedicated LCA software.



ILCA Mission:

To promote the use and good practice of lifecycle based sustainability assessment Worldwide through theoretical and practical education of students and practitioners to the highest scientific and ethical standards

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JANUARY 2013

WHAT DO YOU HAVE TO DO?

You may submit within one or more of the 9 topics listed on the next page. You need to submit the following for evaluation **be**fore 31st December 2013:

- An electronic video recording of your lecture and exercise sessions, to show the interaction with and/or among students,
- 2. Learning targets, as announced to students
- A list of reading materials used (and copies of materials, if not publicly available)
- Slides used (in .pdf. or .ppt format), with or without accompanying text
- Exercises used and examples of solutions and feedback (in any relevant software format)
- 6. Examples of exam questions and answers (if applied)
- A context description (e.g. course description, target group, typical number of students)

EVALUATION PROCEDURE

All submissions within each topic will be evaluated by at least two leading experts within the topic. Evaluators include Bo Weidema, Manuele Margni, Miguel Brandão and Ralph Rosenbaum. A full list of evaluators will be provided later, as we are still recruiting. Materials will be evaluated as to:

- scientific content,
- consistency between audience, learning targets, content, teaching methods and course evaluation,
- student engagement,
- teaching outcome and evaluation,
- sensitivity to cultural context and background of audience.

Evaluation will start immediately after submission, but selection and announcement of the Best Practice Award will only be done after the final deadline of December 31st 2013.



For each of the 7 material categories listed on the left, you should indicate if the materials are to be:

- Accessible only to the evaluators;
- b) Accessible for and open for comments from other participants, with copyright restrictions;
- c) Accessible for and open for comments from the public, with copyright restrictions.

Unless indicated otherwise, submissions will be handled as confidential, accessible only to the evaluators, which have confidentiality agreements with ILCA. However, we do encourage you to submit more openly, e.g. accessible for comments by other participants, since this will optimise the feedback on your materials.

LANGUAGE:

Submissions can be in **any language**, but only one language per topic submission.

1) Introduction to LCA / Goal and scope of LCA

Submissions for this topic can include the definition and purpose of LCA, its context and relation to other assessment techniques, discussion of relevant definitions (e.g. of sustainability and environment), application areas and examples, the ISO standards and other relevant guidelines and definitions, the iterative nature of LCA, considerations of goal and scope, the decision situation to be supported, and its consequences for the definition of the functional unit, methodology, system boundaries, impact categories, etc. Submissions under this topic may also include procedures for defining the functional unit, interaction with commissioners and stakeholders and for critical review, but does not cover other procedural aspects of LCA (since these are covered by the following topics).

2) System boundaries

Submissions for this topic can include definitions of product systems and system boundaries, examples, justifications and other issues of cut-off rules, boundaries between product systems, temporal and spatial boundaries, and those between the technosphere and the environment.

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Submissions for this topic can include the applied mathematical basis for calculations in LCA software, e.g. matrix algebra, and practical calculation exercises with spreadsheets and dedicated LCA software.



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JANUARY 2013

Topics continued...

7) Impact assessment

Submissions for this topic can include definition of impacts (biophysical as well as social and economic), the criteria for choice of impacts and the relevance of different impact categories, the quantification of impacts on human and non-human well-being, end-point and midpoint modelling, impact pathways / environmental mechanisms, areas of protection, distance-to-target, choice modelling, monetarisation, uncertainty and consistency, normalisation and weighting, and examples, case studies and communication of impact assessment and its results.

8) Uncertainty and sensitivity analysis

Submissions for this topic can include definitions of the terms of uncertainty, sensitivity, variability, precision, accuracy, and reliability, the types and sources of uncertainty, their measurement and/or estimation, tools for uncertainty analysis, propagation of uncertainty in an LCA, correlation between data, reduction of uncertainty, uncertainty as a strategic tool for data collection and interpretation, and examples, case studies and communication of uncertainty.

9) Interpretation, reporting and graphical presentation

Submissions for this topic can include contribution analysis and similar explorative techniques, consistency checks and other validations, interpretation of the completeness, uncertainty and validity of results, understanding limitations and drawing conclusions, explorative techniques for improvement options, rebound effects from implementation of improvements, reporting formats, completeness and transparency in reporting, ISO requirements for reporting, graphical representation of results, ethical concerns in reporting, adaptation to the application context and audience.

SUBMISSION FEE

For university personnel, submission for **one topic is free**. Individual members of ILCA may submit within **three topics for free**. Institutional members of ILCA can make an unlimited number of submissions to any of the topics.

Additional submissions and nonuniversity submissions are accepted at 200 Euro per topic, paid at submission. University personnel with tenure can apply for individual membership of ILCA (membership fee 200 Euro per year) to Jenna Watson: <u>jenna@ilca.es</u>

Full courses may also be submitted, even if they cover less or more than the above topics, but the evaluation for the 2013 Best Practice Award will be restricted to the 9 topics above, and it must be specified which parts are submitted for evaluation under each topic.

Full courses are invited to simultaneously apply for ILCA recognition, which includes the right to use the ILCA logo and free advertisement on the ILCA website.

We look forward to your contribution! Professor Bo Weidema Dr. Manuele Margni Dr. Miguel Brandão Dr. Ralph Rosenbaum



ILCA International Life Cycle Academy

The ISIE newsletter is published four times a year. The aim of the newsletter is to keep our members informed about the latest and greatest ISIE news from around the globe. We can only do it with your help! Please send us any information you think is worth including in the newsletter (conference summary, important publications, job posting, new appointments, etc.) to vered@industrialecology.org.il.