

ANNUAL REPORT

2019

▲ **International Society**
▼ **for Industrial Ecology**



OUR MISSION

The International Society for Industrial Ecology promotes industrial ecology as a way of finding innovative solutions to complicated environmental problems, and facilitates communication among scientists, engineers, policymakers, managers and advocates who are interested in better integrating environmental concerns with economic activities.

The mission of the ISIE is to promote the use of industrial ecology in research, education, policy, community development, and industrial practices.

▲ International Society

▼ for Industrial Ecology



CONTENTS

01 President's Report

03 Membership Report

05 Financial Report

09 Transition Report

12 Diversity and Inclusion Initiative

14 Awards

18 Journal of Industrial Ecology

20 Conference Committee

25 Member Proposals

Sections Reports:

29 Environmentally Extended Input-Output

30 Industrial Symbiosis & Eco-industrial Development

32 Life Cycle Sustainability Assessment

34 Socio-Economic Metabolism

36 Students

38 Sustainable Urban Systems

PRESIDENT'S REPORT



**HEINZ
SCHANDL
PRESIDENT**

For the last twenty years the International Society for Industrial Ecology has been contributing world-class science to provide an evidence base for environmental and sustainability policy and for business decisions that are aiming for environmental sustainability. We have done that by bringing our understanding about materials and waste management, energy efficiency and pollution reduction to the debate about how human wellbeing and living standards can be increased within planetary boundaries. In doing so our research has had profound impact for policy development for instance in the context of the United Nations Environment Program and the IPCC process. Industrial Ecology research has informed urban councils and industry decisions aiming to improve the sustainability of the urban metabolism and industrial symbiosis processes. We are contribution science and innovation to stakeholders that are striving to achieve the sustainable development goals.

In this annual report, you will find examples of academic and community activities of our six sections, information about our efforts to bring the scientific community together at ISIE conferences, and our efforts to grow the talent of the next generation of industrial ecologists. Our activities cover the diverse areas of industrial metabolism, life cycle analysis, sustainable consumption and production, urban sustainability and environmentally extended input-analysis to address problems of resource use, waste and pollution. It is characteristic for our community to relate the foundational paradigm of industrial ecology to economic, social and political science insights to design sustainability solutions. There is ample evidence of our success as a scientific community through the achievements of our members who are contributing to the policy community, to industry and to the advancement of our science. The biennial Gordon Research Conference is further testament of the science excellence of our community and helps identify the research directions of the future. The Journal of Industrial Ecology, which is the ISIE's flagship journal, is another example of our scholarly contribution as a scientific community.

Importantly, this year has also been a year of developing the institutions of the new ISIE. Our incorporation as an independent legal entity in The Netherlands has emphasized the independence and global position of the ISIE but has also required us to rebuild many of the functions that were previously provided by Yale University who were hosting the ISIE for the last 20 years. In this process, we held our first Annual General Assembly in Beijing in July 2019 and we received many proposals by our membership for new activities which the board is now aiming to implement jointly with our members.

We have since established a well-functioning board, quarterly regular board meetings and a fortnightly meeting of the core executive team. We have maintained and slightly grown our membership, managed healthy finances and established operating principles for the society. We have established, with support of our membership, an inclusion and diversity group and are looking into alternatives for long-distance air travel when we are organizing our conferences. We recently elected new board members and I am very proud to lead such an ambitious group of people who look after the ISIE at this time.

Everything we do is driven by our extraordinary and committed membership around the world. The ISIE has a very strong membership base in North America, Europe and Asia and is aiming to increase its membership in Latin America and Africa. During a time when industrial ecology knowledge products are becoming ever more important, we are aiming to cohere and build an umbrella for industrial ecology initiatives around the globe and to service the growing global industrial ecology community.

Solving the challenges policy and industry are facing to organize sustainable material systems through resource efficiency, waste and pollution reduction and circular economy has never been more important, and this annual report showcases some of the important work where we are contributing science to policy and business decisions and help unlock a more sustainable and inclusive future. For the ISIE 2019 was an exciting and successful year and has set us up to continue our successful global role for the years to come.

MEMBERSHIP REPORT



**TIM
BAYNES
SECRETARY**

The Society's membership continues to grow in number and diversity of geographical origin. There are now 577 members from 52 nations. Although membership has a cyclical relationship with our biennial conferences, we have seen more than the usual renewals in the last year (154). More than 220 new members have been added since March 2019, though this may be an artefact of reporting the first year of the Society as based in the Netherlands.

Number and Type of Membership

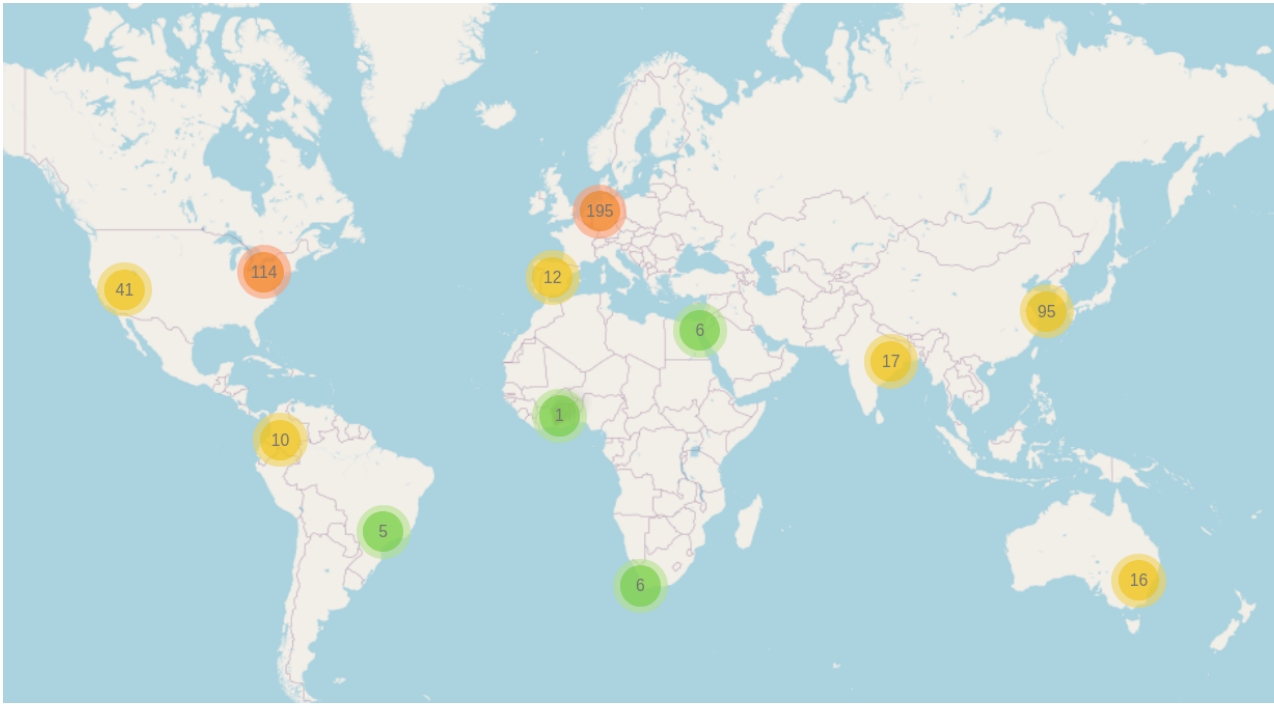
Compared to previous years, there has been significant growth in the proportion of student and young professional members (see Table 1).

Where is Our Membership?

Europe and North America account for nearly 70% of all of ISIE's membership. Asia and the Middle East collectively represent about a quarter of the Society, but the fastest growing location for new members is Africa.

	2016	2020
Regular	282	245
Student	147	248
Young Professional	28	78
Institutional	0	0
Courtesy	0	6
Total	457	577

Table 1 Comparison of membership in non-conference years. Note that there is an active intent in the Board to attract institutional membership – row appears below anticipating future reporting.



Map 1 - Geographic spread of our membership. The interactive map can be found on our website at: <https://is4ie.org/about/members/map>

ISIE members are active across many of the Sections. The total membership across Sections is 1262, which is more than twice the total membership of the ISIE. This indicates that each Society member is involved in approximately 2 Sections on average.

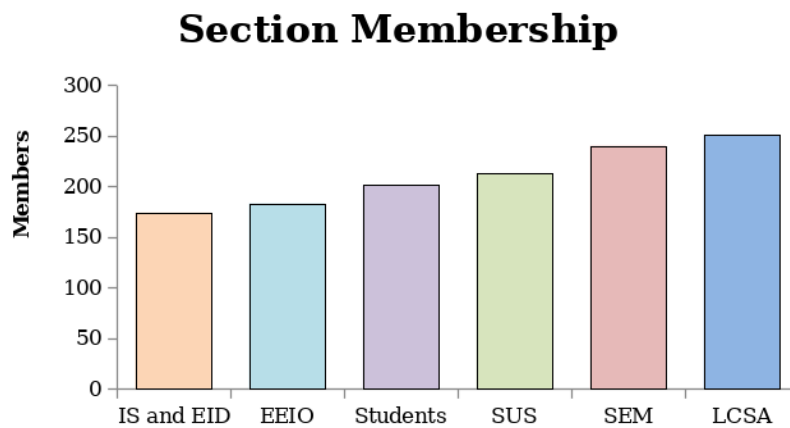


Figure 1 Membership of sections totals. Key - IS and EID: Industrial Symbiosis and Eco-industrial Development, EEIO: Environmentally Extended Input Output Section, SUS: Sustainable Urban Systems, SEM: Socio-Economic Metabolism, LCSA: Life Cycle Sustainability Assessment

FINANCIAL REPORT



**VALERIE
THOMAS**
TREASURER

In this report, the ISIE will provide its members with an overview of the finances of our society. We will look back at the year 2019, and also look forward to the upcoming years. In 2019, ISIE transitioned to being an independent organization, based in The Netherlands. Previously, ISIE accounts were managed by Yale University. In 2019, some expenses were paid by Yale, and some funds are still at the university (we expect to complete the transition this year). To provide a complete picture of our finances, this report will provide consolidated figures that take into account transactions and funds both from Yale and from ISIE in The Netherlands.

Income: The Society has three principal sources for generating funds: membership subscriptions; grants and gifts (none in 2019), and net proceeds from biennial conferences.

Starting in 2019 we offer only two-year memberships. Fees vary by the country in which members live and work. Memberships start at the beginning of the calendar years, so the 2019 two-year memberships will expire in December 2020. Total membership for 2019 amounted to just under € 40,000, most of which came from regular memberships. In future years, we expect our membership to grow slightly, in line with past trends. In 2019 we directly charged our members for their fee (unlike previous years when this was managed by Wiley). We expect future renewals to be spread between the years, with part of the membership renewing within 2020, and others in early 2021.

The ISIE 2019 conference in Beijing at Tsinghua University, organized by Professor Shi Lei, was highly successful. The ISIE proceeds were over € 75,000, with € 10,425 of this spent on scholarships for participants.

Expenses: In line with the goals of the transition into an independent organization, the ISIE has become a leaner society with reduced expenses, compared to previous years.

Remunerations: There are currently two paid positions within the ISIE: the Administrative Assistant running the secretariat, and the Executive Director. In

2019, these remunerations were about half of our expenses. Going forward, the ISIE board proposes to provide a modest remuneration for the Secretary and Treasurer, in light of the increased workload and expectations for these roles.

General expenses: There were some legal expenses related to the registration of the ISIE in The Netherlands in 2019. We do not expect these expenses to recur in the coming years. Another key expense was the support of our journal, the Journal of Industrial Ecology. Maintaining and improving the website, as well as taking credit card payments, make up for most of the remainder in this category.

Travel: No travel took place in 2019. We have tentatively reserved budgets going forward, although this may be affected by the Covid-19 pandemic.

Scholarships and Awards: The ISIE makes available scholarships for students to attend the biennial conference. A budget is also made available during the alternating years to support the other conferences.

Projects and Initiatives: We expect that member-driven proposals and other projects become a pillar in our society. We have worked on a budget to reflect this situation and set aside € 15,000 during conference years, and € 10,000 in other years.

Important notes: Due to the constantly changing situation around the Covid-19 pandemic, there are many ways in which the ISIE can be affected in the coming years, ranging from lower membership to changes in conferences. The ISIE is

preparing alternative budgets to cater to these scenarios, but until the exact impact on the ISIE is clear, we operate with our baseline budget. The healthy reserves of our society provide a robust foundation to get through financial hardship.

The budget and the 2019 financial figures have been approved by the membership in the 2020 AGM in July 2020.

Income Statement 2019 and Budget 2020-2023

Income (€)	2019	2020	2021	2022	2023
	<i>Actual</i>	<i>Budget</i>	<i>Budget</i>	<i>Budget</i>	<i>Budget</i>
Regular memberships	32,865	14,000	19,000	15,400	20,900
Student memberships	3,065	2,000	3,000	2,200	3,300
Young professional memberships	7,920	4,000	6,000	4,400	6,600
Institutional memberships	0	1,500	5,000	5,000	5,000
Donations	0	0	1,500	1,500	1,500
Conference Income	75,475	0	50,000	0	50,000
Other Income	0	0	0	0	0
Total income	119,325	21,500	84,500	28,500	87,300
Expenses (€)					
Remunerations					
Administrative services	10,651	10,500	10,815	11,139	11,474
Executive Director	10,474	10,600	12,500	12,875	13,261
Secretary Remuneration	0	2,500	2,500	2,500	2,500
Treasurer Remuneration	0	2,500	2,500	2,500	2,500
General expenses					
Legal costs	2,554	0	0	0	0
Accounting software	0	491	655	674	694
Credit card fees	1,146	600	840	660	924
Banking fees	0	200	206	212	219
Website management	1,355	3,500	3,605	3,713	3,825
Journal of Industrial Ecology	5,472	6,000	6,000	6,000	6,000
Other costs	0	200	206	212	219
Travel					
Executive Director	0	2,000	2,060	2,122	2,185
President and Board Members	0	2,000	2,060	2,122	2,185
Scholarships and Awards					
Conference scholarships	10,425	1,000	10,000	5,000	10,600
ISIE Awards	183	0	750	0	750
Projects and Initiatives					
Yale Closing Ceremony	0	2,000	0	0	0
Member Proposals	0	13,000	15,000	10,000	15,000
Unforeseen costs	0	2,500	2,500	2,500	2,500
Total expenses	42,262	59,591	72,197	62,230	74,836
Net income	77,064	-38,091	12,303	-33,730	12,464
Start-of-year reserves	113,064	190,128	152,037	164,340	130,610
End-of-year reserves	190,128	152,037	164,340	130,610	143,075

Balance Sheet

December 31, 2019

Current assets

Cash	94,494
Accounts Receivable	67,331
	161,825

Restricted funds

Laudise Medal	12,645
Scholarship Fund	15,624
Metabolism	2,457
Development	377
	31,103

Total assets (€)	192,928
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Liabilities

Accounts Payable	2,800
Other Liabilities	0
	2,800

Equity

2019 Earnings	77,064
Retained Earnings	113,064
	190,128

Total liabilities and equity (€)	192,928
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TRANSITION REPORT



**PAUL
HOEKMAN
EXECUTIVE
DIRECTOR**

In the last few years, the ISIE has undergone some significant institutional changes. For over 20 years, the ISIE was hosted by the Yale School of Forestry and Environmental Studies. Yale University and the team at the university's Center for Industrial Ecology provided a stable institutional home for our society and its secretariat, from which it could grow into an internationally recognized and broadly supported academic community. However, former ISIE President Edgar Hertwich identified restrictions to growth and flexibility within this structure and led the former Council to explore a new organizational model. I was brought on in 2018 as Interim Executive Director to help draw out a possible roadmap and subsequently implement these organizational changes. This report looks back at progress made to date and the tasks in front of us.

Principal Achievements

Independent legal entity

Working together with Yale University, we have been able to separate ourselves and become our own legal entity. This entity was registered as a non-profit society in The Netherlands. This is, however, merely an administrative home base. In our new model, the ISIE is governed remotely without being anchored to a single university. This independent structure has provided the ISIE with a more direct and efficient control over processes, finances, and general operations. The ISIE is now a smaller but more nimble and decentralized organization.

Internal membership management

Previously, our membership was managed by Wiley, the publisher of the Journal of Industrial Ecology. This added an unnecessary layer of complexity in the membership registration and renewal process, and it generated an additional administrative burden on our organization. We have now decoupled this process and membership registration is managed in-house, transactions are processed immediately, and all this is done with very little administrative overhead.

In-house workload delegation

The executive board has taken a more participatory role in the governance as well as the daily operations of the ISIE. Financial transactions and reporting are now part of the Treasurer's portfolio. The Secretary is in charge of upkeep of procedural documentation, meeting minutes, and membership communications. These two roles, both fulfilled by elected members, help reduce the responsibility of the Secretariat. Financial review is delegated to an appointed (member-based) committee.

Leaner operations

We have been able to significantly reduce our operating costs within this new structure. This is partly due to the lower workload of the Secretariat through the support of the board, and partly due to the reduced cost of hiring an international freelancer in comparison to a Yale-based salaried position. This has already enabled us to significantly reduce membership fees.

Increased member input

Providing the membership with a stronger voice and increased decision-making powers was an important goal from the outset. Fortunately, Dutch regulation for member-based societies provided a convenient framework to achieve this goal. Members are now in charge of approving our budget, reviewing our finances, and voting on our major decisions.

There are furthermore clearly defined procedures to ensure that ultimately the membership has control of our organization. An annual general meeting (AGM) is now part of our institutional calendar. We also introduced a new way for members to submit ideas and steer the ISIE towards projects and activities that they consider important by submitting and voting for proposals during our AGM.

Key tasks going forward

Committees

We have always had a number of member-run committees (e.g. the awards committee or the conference committee). We are now working on taking these committees to the next level and integrating them more fully into the ISIE board. This includes ensuring that each board member has a clearly demarcated portfolio (either chairing one of the committees or sponsoring one of the member proposals), which should help balance the overall governance workload better across the board.

Banking with an international board

International banking regulations have become more and more strict when it comes to identifying their clients. With 14 board members located in four continents it is challenging to comply with in-person identification at a Dutch bank. We have found a temporary solution with a virtual banking platform (Transferwise), but are seeking options to establish an account at a brick-and-mortar bank that can accommodate an international and continuously rotating board.

Streamlining our institutional calendar

There are a number of new events (including the AGM, the publication of our financial reports, and the financial review process), as well as a different fiscal year (which is now running according to the calendar year). We aim to accommodate all these events a bit better with our other ongoing activities (including our conferences and our election process) to make sure all these pieces fit more neatly into one another.

Member proposals

In our previous (and first) AGM, we have invited members to submit proposals. It was the first time members could directly steer the direction of the ISIE and influence the projects our society pursues. We are now working out a suitable procedure to subsequently develop, budget, and execute these projects. This will take some time and practice, but we are committed to ensuring that member-driven proposals are part of our society's DNA.

DIVERSITY AND INCLUSION INITIATIVE



**AMANDA
GCANGA**
D&I OFFICER



**ELIETTE
RESTREPO**
VICE OFFICER

Creation of a diversity and inclusion initiative

The establishment of the Diversity and Inclusion (D&I) portfolio, stems from a Power Hour session held during the 2018 Gordon Research Conference. The Power Hour, facilitated by Professor Anu Ramaswani, was designed to help address the challenges women face in science and support the professional growth of women in our communities by providing an open forum for discussion and mentoring. The informal gathering brought to the surface the many challenges women face in academia and the need for more than just ad-hoc discussions on gender and academia. In recognition of the need for more focussed and strategic attention to diversity and inclusion, the ISIE student chapter board created a D&I Officer position to help drive the portfolio. Amanda Gcanga from South Africa was elected during the 2018 November elections as the first D&I Officer of the ISIE Student Board.

Building a Diversity and Inclusion portfolio in 2019

Identifying priorities for D & I portfolio

In 2019, D&I initiatives focused on getting a better sense of the student chapter priorities. Two methods were used to engage with members of the student chapter:

- on-line survey and
- a workshop during the 6th of July 2019, the 6th Symposium of Industrial Ecology for Young Professionals in Beijing.

The on-line survey provided an overview of the D&I initiative as well as brief questionnaire to help set-up prioritise for D&I. Unfortunately, there was a limited response. Given the personal and sensitive nature of diversity and inclusion issues, a face-to-face engagement identified as a next step.

The D&I initiative took advantage of the 6th of July 2019, the 6th Symposium of Industrial Ecology for Young Professionals held in Beijing prior to the ISIE Conference. The symposium was convened by the ISIE student board. As a part of the symposium, the D&I Officer ran a brief workshop, whose aim was to develop a better understanding of what D&I means to the student chapter members and what might be key intervention areas to prioritise. Participants identified D&I attributes at a personal level (mindful of biases and prejudice, respectful of differences, privilege) and at a systematic level (equal opportunities for all. Income equality, resources inequality, friendly working environment, fair representation on gender and race, fair policies, empowerment).

To conclude, three priorities for D&I were identified:

- Advocate for structural change and moving beyond conversations
- Create awareness on diversity and inclusion attributes through offering a safe space for discussing diversity and inclusion attributes, providing an opportunity for listening to stories and experiences as an eye opener, and providing an opportunity to access support
- Explore structural transformation and awareness within the context of discrimination, cultural diversity, prejudice, career opportunities for minorities, motherhood in IE, women in science, publishing for non-native English speakers, and visibility of D&I on ISIE website and journals.

Support for D&I Portfolio

In parallel to identifying priority areas for D&I, there was a strong effort of identifying what support would be required in addressing said priority areas. As a first step, the D&I submitted a funding proposal to the ISIE and presented it at the ISIE Conference. The financial support would be used towards developing a coherent strategy/policy for D&I. The proposal was successful after final on-line voting by ISIE members. The board also identified the proposal as a priority for ISIE and not just the student chapter. Callie Babbitt, Vice Secretary on the ISIE Board, offered support in finetuning and implementing the proposal.

Another step taken towards establishing a strong support base for D&I initiative was the opening of a Vice Diversity & Inclusion Officer. Eliette Restrepo, from Colombia and currently based in Switzerland, was elected in the 2019 ISIE Student board elections. A Vice D&I officer will ensure that there is continuity of the initiative when the D&I officer completes his/her board term.



With the granted financial support from ISIE, the team had planned to execute the following initiatives:

- **Development of a D&I Strategy:** a clear strategy/policy framework towards enabling a diverse and inclusive IE environment. The team aims to have the strategy by August 2020. The team had planned to get initial feedback of some aspects of the draft strategy at the now cancelled conferences due to the corona virus outbreak. Online platforms will now be utilised.
- **Day Care Support at upcoming conferences:** The idea is to support parents, particularly women, that need to balance between attending conferences and taking care of their children. With the global corona virus pandemic spreading, this initiative will be put on hold as conferences for 2020 are being cancelled.
- **Scholarship to attend IE conferences:** This support is especially intended for students from less represented and less resources regions. The aim is built towards a more diverse group of participants. As with the previous initiative, this item has been put on hold.

Going forward, the D&I team would have to re-assess what is possible given the global state of affairs. New initiatives might be identified given the new way of doing business which will certainly come with its own challenges around diversity and inclusion.

AWARDS

Society Prize

The Society Prize is awarded for outstanding contributions to the field of industrial ecology. There are no specific requirements for this award, which could be centered on a single particular accomplishment or those of a career. It is the ISIE's highest recognition of professional achievement.

Past Recipients:

- [Marina Fischer-Kowalski](#) (2017)
- [Roland Clift](#) (2015)
- [Reid Lifset](#) (2015)
- [Yuichi Moriguchi](#) (2013)
- [Gjalt Huppel](#) (2011)
- [John Ehrenfeld](#) (2009)
- [Thomas Graedel](#) (2007)
- [Robert Frosch](#) (2005)
- [Robert Ayres](#) (2003)

Laudise Medal

The Laudise Medal is awarded for outstanding achievements in industrial ecology by a researcher under the age of 36, endowed by AT&T in memory of Robert Laudise.

Past Recipients:

- [Gang Liu](#) (2017)
- [Ming Xu](#) (2015)
- [Alissa Kendall](#) (2013)
- [Matthew Eckelman](#) (2013)
- [Anders Hammer Stromman](#) (2011)
- [Sangwon Suh](#) (2009)
- [H Scott Matthews](#) (2007)
- [Arpad Horvath](#) (2005)
- [Edgar Hertwich](#) (2003)

AWARDS COMMITTEE MEMBERS

President **Heinz Schandl**

Past president **Edgar Hertwich**

President-elect **Stefanie Hellweg**

Former Award Recipient **Gang Liu**

Former Award Recipient **Marina Fischer-Kowalski**

Former Award Recipient **Roland Clift**

2019 AWARD WINNERS



Winners of The 2019 Society Prize,
awarded for outstanding contributions
to the field of Industrial Ecology -
Professor **Yi Qian** and Professor
Marian Chertow



Winner of the 2019 Laudise Medal,
awarded for outstanding achievements
in industrial ecology by a researcher
under the age of 36 - Associate
Professor **Francesca Verones**



Yi Qian is a professor of environmental science and engineering at Tsinghua University. Qian was a pioneer in China educating and applying cleaner production in early 1990s, and she succeeded making China National People's Congress (CNPC) enact the *Promotion Law for Cleaner Production* in 2002, during when she served as a representative in CNPC. Another key achievement led to the *Promotion Law for Circular Economy* in 2009.

Qian was a pioneer in China understanding, advocating, educating, and applying industrial ecology in China. Together with a group from Yale including Dr. Tom Graedel, Dr. Marian Chertow, and others, Qian organized the first training workshop on industrial ecology for Chinese faculty members, and launched the first course of industrial ecology at Tsinghua, which was the first one in all Chinese universities.

Qian is now leading more efforts on eco-civilization and sustainable development. She founded the Tsinghua Center for Eco-Civilization in 2016, and has made significant contribution in making Eco-Civilization to be a China's national strategy.

China is one of the countries where IE-relevant solutions have been most widely accepted and applied in the last 2-3 decades, and Qian is the most important person in enabling and accelerating this progress. Though almost all her publications are in Chinese, she has been widely and highly recognized. She was elected to be a member of Chinese Academy of Engineering in 1994, served as the vice-chair of World Federation of Engineering Organizations.



Marian Chertow is professor of industrial environmental management at the Yale School of Forestry and Environmental Studies and holds appointments at the National University of Singapore and the Yale School of Management. Prior to her academic career, she worked in government, including a period as director of the Connecticut Resources Recovery Agency. She is a pioneer in the concepts of industrial symbiosis and the circular economy, focusing on utilization of waste as resources across industrial networks. Her scientific contributions straddle corporate management, policy, and the analysis and modeling of resource flows.

Through her contributions to the establishment of the Industrial Environmental Management program and the International Society of Industrial Ecology, hosted by Yale, Chertow was instrumental in establishing a beachhead for the field at one of the world's most famous universities. She uses her frequent contacts with business leaders, policy makers, and students in Masters' and Executive programs to tirelessly communicate the importance of industrial ecology to decision making.

Chertow served the ISIE in numerous functions, including as president from 2013-14. She was a founder and co-convener of the Industrial Symbiosis Research Symposium and serves on the Board of the Alliance for Research in Corporate Sustainability (ARCS).

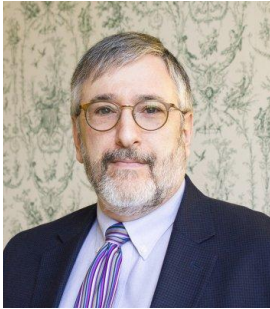


Francesca Verones, an associate professor at the Norwegian University of Science and Technology (NTNU) in Trondheim, Norway. Verones studied environmental engineering at the Swiss Institute of Technology (ETH) in Zürich, where she won prizes for outstanding Masters' and PhD theses. She had a short stint as a PostDoc at the Radboud University in Nijmegen, the Netherlands.

In her nomination, her PhD advisor Stefanie Hellweg describes Verones as “a brilliant young scholar who is pioneering the assessment of biodiversity effects in Life Cycle Assessment.” Francesca works on closing important gaps with respect to the assessment of impacts in aquatic and marine environments and has addressed major drawbacks in the general approach to ecosystem impact assessment in LCA, such as addressing the species richness of affected habitats. Her organizational skills are formidable. She coordinated the LC-Impact methodology in collaboration with Mark Huijbregts and led a task force of the UNEP-SETAC Life Cycle Initiative. Further, she held one of the most appreciated talks at the 2018 Gordon Research Conference.

Verones recently received a prestigious starting grant from the European Research Council (ERC). Her project is called for the project: ATLANTIS – Whales, waste and sea walnuts: incorporating human impacts on the marine ecosystem within the life cycle impact assessment.

JOURNAL OF INDUSTRIAL ECOLOGY



**REID
LIFSET**
EDITOR IN
CHIEF

2019 was a year of transition for the *Journal of Industrial Ecology*—a new editorial structure was put in place and a new layout and design were adopted, the journal moved to a new production system, and data accessibility requirements and badges were implemented. There were also special issues, Graedel Prize winners, and new editors. The 2-year impact factor increased to 4.82 and time to publication was reduced.

An Asian editorial office at Tsinghua University and a European editorial office at NTNU began operating in earnest. This brought new resources for editorial functions and a faster time to publication.

Special issues: The JIE published a special feature "Taking the Circular Economy to the Next Level" (*JIE 23:1*) that generated significant downloads and citations and prepared two special issues for 2020 publication (*LCA for Emerging Technologies* and *Industrial Ecology for Climate Adaptation & Resilience*). Two calls for papers were announced: *Material Efficiency and Climate Change Mitigation* and *Data Innovation in Industrial Ecology*.

New Article Style: The JIE shifted to a standard article layout used by many Wiley journals. This provides a simpler behind the scenes publication process and is contributing to reduced time to publication. Along with the new layout, the JIE has adopted the APA 6th edition citation and reference style.



Example of new JIE article layout

Data Transparency: The JIE announced data transparency policies in 2018 and with the assistance of our new data editors, Niko Heeren and Guillaume Majeau-Bettez, the journal began enforcing data accessibility requirements and awarding the first data accessibility badges to articles meeting more stringent criteria for data openness. Wiley, the JIE's publisher, is establishing data initiatives for its journals and the JIE is looking to integrate those initiatives with our data transparency policies over the course of the next year.



JIE Data Openness Badges

Updated Supplemental Website: The JIE has dramatically updated its supplementary website at <https://JIE.yale.edu>. The website contains a variety of resources including calls for papers, citation management software templates and bibliographies for authors, and translations of journal abstracts into Chinese and Spanish.



Updated JIE supplementary website

Best Paper Prize Winners: The JIE announced the winners of the Graedel Prizes for the best papers of 2018. The winning Senior Best Paper was “Energy, Nitrogen, and Farm Surplus Transitions in Agriculture from Historical Data Modeling, France, 1882–2013” by Souhil Harchaoui and Petros Chatzimpiros. The winning Junior Best Paper was “Unraveling the Nexus: Exploring the Pathways to Combined Resource Use” by David Font Vivanco, Ranran Wang, Sebastiaan Deetman, and Edgar Hertwich.



Souhil Harchaoui (right) and Petros Chatzimpiros (left)



David Font Vivanco

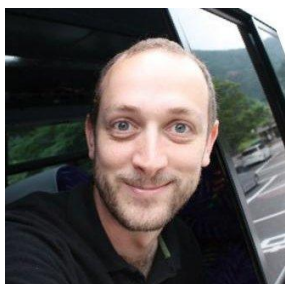
New and Departing Editors: Wei-Qiang Chen (Chinese Academy of Science; Urban Metabolism), Niko Heeren (ETHZ, Data), Guillaume Majeau-Bettez (Polytechnique Montreal, Data), and Deepak Rajagopol (UCLA, LCA) became editors in 2019, the 23rd year of publication of the Journal of Industrial Ecology. As always, the successful publication of 6 issues in 2019 would not have been possible without the time devoted to this endeavor by the editors and editorial staff of the JIE. Many thanks go to all the editors and members of the editorial staff but we especially want to extend our thanks to those who completed their stint at the JIE in 2019, including associate editors Claudia Binder (Urban Metabolism), Thomas Gloria (LCA), Donald Lyons (Industrial Symbiosis), Valerie Thomas (Associate), Walter Wehrmeyer (Case studies), and Ron Williams (LCA). We thank them for many years of dedicated work on the JIE.

WeChat: Under the leadership of Xiao Li and Junming Zhu, a WeChat channel has been established to publicize and discuss JIE articles, special issues and calls for papers. The channel is attracting considerable use—read by more than 24,000 people and shared more than 3,000 times by more than 2,000 people.

CONFERENCE COMMITTEE



**ANNA
PETIT-BOIX**
CO-CHAIR



**TOMER
FISHMAN**
CO-CHAIR

Inauguration of the ISIE Conference Committee

2019 saw the inauguration of a new Conference Committee within ISIE. The primary purpose of this Committee is to develop a plan for all the meetings held by or jointly sponsored by the Society. The Committee will call for, gather and review proposals of potential hosts for upcoming biennial ISIE Conferences. The Committee will also re-evaluate the structure of the conferences financially, geographically, environmentally and programmatically and find other Societies or groups that can be engaged in ISIE conference-related activities. This will involve evaluating related conferences and events that potentially compete with ISIE conferences and then determining how ISIE conferences can maintain strength among them.

Scoping the committee's agenda

The 10-member committee is composed of volunteer ISIE members and elected ISIE board members.

The committee identified several items for its agenda together with the ISIE governance bodies and through conversation with the ISIE membership, and past and future ISIE-related conference organizers:

- Scheduling and conference cycles
- Organizing relation between ISIE and local hosts
- Main conference contents and length
- Virtual conferences and other emerging technologies
- Environmental aspects
- Attendance, inclusion, diversity, and representation

Currently, the Committee has defined two working groups focusing on (1) conference formats, timing and ISIE-host relations, and (2) participation and sustainability.

ISIE membership conference survey

The Committee has successfully collected the views of the membership through an online conference-related survey in late 2019, and through interviews with past conference organizers throughout 2019.

Topics covered in the survey:

- Frequency and timing
- Travel behavior
- Format preferences
- Expectations and suggestions
- Environmental aspects

Main take-home messages include :

the relevance of sustainability in conference selection and participation,
 the need for creating more discussion and networking spaces,
 the willingness to interact and work more collaboratively during conferences,
 the increasing interest in global cutting-edge topics, oftentimes from other disciplines.

Sample results are provided in Figure 1 and Figure 2. A summary report to the ISIE board and membership is being compiled for dissemination in 2020.

The duration that fits best to my particular situation is:

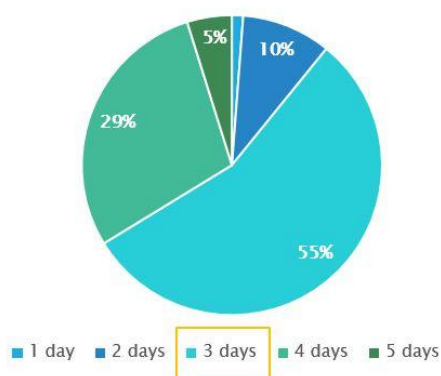


Figure 1: Survey respondents' replies regarding conference duration and expectations. (n = 87)

What drives you to participate in ISIE conferences?

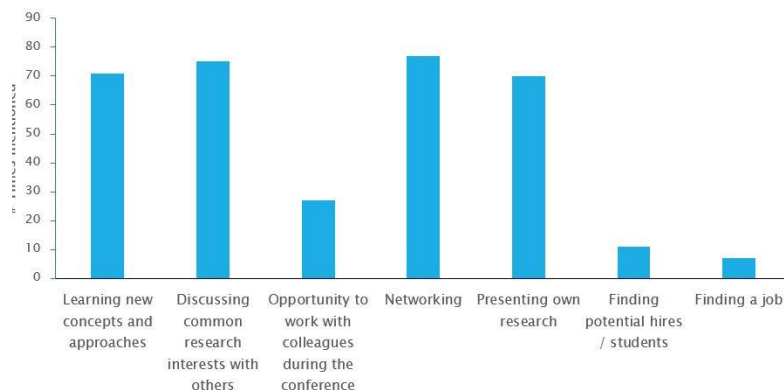


Figure 2: Survey respondents' replies regarding conference expectations. (n = 87)

COMMITTEE MEMBERS

Co-chair **Anna Petit Boix**

Co-chair **Tomer Fishman**

Immediate Past President **Edgar Herwich**

Conference Committee Member **Stijn Van Ewijk**

Conference Committee Member **Weslynn Ashton**

Conference Committee Member **Paul Currie**

ISIE Board Member **Matthew Eckelman**

ISIE Board Member **Shoshanna Saxe**

ISIE's 10th Biennial Conference in Beijing

Tsinghua University in Beijing hosted the 10th edition of ISIE's Biennial Conference in 7-11 July 2019. The conference hosts, with Shi Lei as conference chair, welcomed a vibrant international crowd and a number of discussions around the theme "Industrial Ecology for Eco-civilization". 502 participants from around the globe, with a large number of representatives from China, the USA and Japan (Figure 3), partook in the different conference sessions and activities. The 6-day event included 9 parallel tracks, 51 regular sessions and 23 special sessions, as well as 2 pre-conference symposia, a seminar and a course.

With eco-civilization as a central topic, the plenary sessions provided insights into global environmental issues. The role of China in approaching sustainability was discussed in a session dedicated to national concerns and priorities, such as air pollution and ecosystem services (Figure 4). From a global lens, the increasing interest in the circular economy was apparent in a plenary focusing on circular metabolism and climate. Environmental targets, such as the goals resulting from the Paris agreement, were discussed in an additional session with a focus on the environmental footprints of global supply chains.

Top 10 Number of Participants

- China - 189
- United States - 77
- Japan - 46
- Netherlands - 27
- United Kingdom – 23
- Germany – 15
- Korea – 14
- Australia – 10
- Norway – 9
- Sweden – 8
- Canada - 8

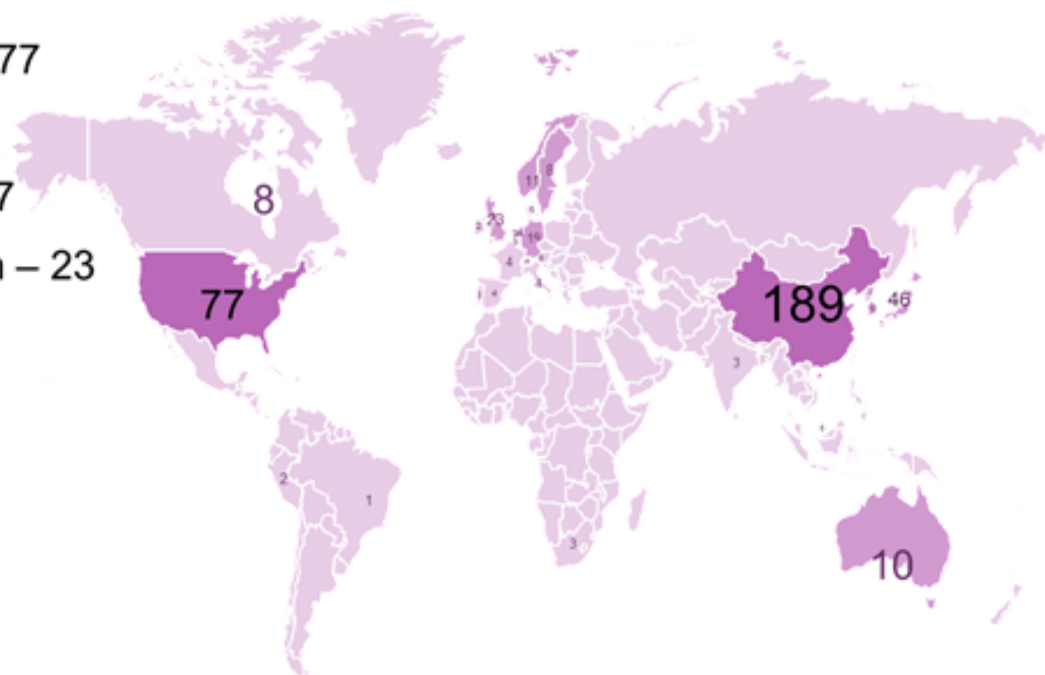


Figure 3: ISIE Biennial Conference: Participants by country

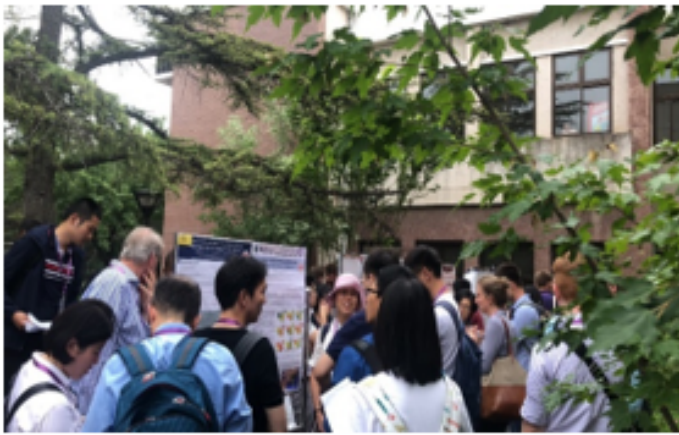


Figure 4: Networking during the poster session (left) and Jiming Hao's presentation at a plenary session (right)

The special sessions (Table 1) covered a wide range of IE-related topics, from plastics, emerging technologies and digitalization to modeling, open science, policy and social issues. Table 1 summarizes the conference topics. Oral presentations were complemented with lively poster sessions with 160 contributions related to similar topics (Figure 4).

Building a research community for the built environment's material stocks and flows	IE Advances in China	Managing national and global supply chain towards environmental sustainability	Evidence-based Decision Making for Industrial Ecology
Environmental Implications of the Digital Economy	Industrial Ecology for Sustainable Plastics	Panel Discussion on Teaching Urban Sustainability	Policy Instruments in IE Models
Ex ante life cycle assessment of emerging technologies	Is Industrial Ecology gender transformative	Product lifespans and obsolescence	Urban Mining for a Circular Economy: Stocks and Flows of Materials in the Urban Environment
Future Pathways for scenario modelling in Industrial Ecology	LCA of recycle	Progress on Open Science in Industrial Ecology	Chinese Graduate Student Forum on Resource Sustainability
How can industrial ecology contribute to eco-civilization	Mainstreaming Industrial Ecology Research into National and International Policy Making	Towards the next generation of Environmental Extended Input Output analysis spatially explicit integration of LCA, MFA and IOA	Physical Supply- Use Tables (PSUTs) and Physical Input-Output Tables PIOTs): Methodologies for Generation and Applications

Table 1: Summary of special sessions

The year(s) ahead

Based on the committee's work, survey findings, and collection of previous host experiences, three main outputs are expected:

1. An agreed conference planning guideline.
2. A sustainability monitoring guideline for ISIE-related events.
3. Knowledge bank of past conference organizers' experience, lessons learnt, and how-to tips.

The first results of the committee's work (e.g., survey and host experiences) will be used in the short term to guide decision-making in upcoming conferences. For example, some of the suggestions raised by the membership will be tested during the Interdisciplinary Circular Economy Conference 2020 organized by the University of Freiburg in September 2020, which has a reduced size as opposed to biennial conferences. These pilot exercises will provide feedback to the Committee in order to define a conference guideline based on experimentation.

In particular, the Committee will work closely with the organizers of ISIE2021 in Leiden to both support them and compile the guidelines.

Leiden: 20 years later

The 11th edition of ISIE's Biennial Conference will return to Leiden, the Netherlands, 20 years after the 1st conference in 2001. The ISIE 2021 conference will be co-organised by Leiden University and Delft University of Technology, and will take place in the period 5-8 July 2021..

The theme for the ISIE 2021 conference will be "Transitions". The world is at a point now where we realize that major changes are needed in the way humanity manages natural resources and impacts the planet. Industrial ecology plays a key role in identifying the directions to go.

One major transition is already on its way: the energy transition. Over the past years, industrial ecologists have produced significant insights into alternative energy systems, their benefits for greenhouse gas emissions, and their material requirements. We are beginning to see the contours of a new energy system and to realize what changes need to be made. Nevertheless, this transition is far from complete and industrial ecology research will be needed in the future as well to mark the way forward in this and other sectors.

Another transition key to industrial ecology is still in its earliest stages: the resource transition. Industrial ecology research has been invaluable to show that the magnitude of present-day resource use is already unsustainable, while significant growth may be expected in the next decades. Powerful drivers related to population growth, development and urbanization will bring benefits but will also increase pressure on our natural resources. We urgently need to find ways to reduce resource extraction without compromising (sustainable) development. Moving towards a circular economy may be a way out. In the coming years, we will need much insight and inspiration into this topic to further guide society in addressing the challenges related to this transition. Industrial ecology will play an important role in that process by identifying and assessing pathways towards a more sustainable resource use.

MEMBER PROPOSALS

Starting in 2019, the ISIE has provided an annual opportunity for members to bring forward proposals around new directions, implementation of changes, or other projects that members feel should become a priority for the ISIE. These proposals can be brought forward by any individual member or group of members, and after publishing a call for submissions, the ISIE received its first five proposals before the 2019 ISIE conference in Beijing. During this conference, these proposals were shared with the membership (during the ISIE's first Annual General Meeting), followed by an online voting period. The results were published online, and the ISIE board has subsequently been tasked with taking these proposals forward. After this initial experience, we have been working to bring these projects and initiatives to fruition. For some projects the work is well underway. For others, it will take us some more time. In order to streamline the process of following up on and embedding these projects within our society, the board has started to assign "sponsors" to each approved proposal. Sponsors are existing ISIE board members who are specifically tasked with the following up and engagement with the proponents, and to liaise between the ISIE board, the proponents, and the other parties that may be involved. After the 2020 elections took place, a new set of board members are being installed, and with this new group the ISIE has recently assigned sponsors to each proposal, who will engage with the relevant proponents to take each proposal to the next level. This section provides an overview of each proposal, name of the proponents and the project sponsor, followed by a status update.

Diversity and Inclusion Initiative

Proponents: Amanda Gcanga, Reed Miller

Sponsor: Callie Babbitt

Summary from the original proposal:

With the recognition of the need to establish a platform to discuss and learn about diversity and inclusion, the ISIE Student Chapter Board introduced a Diversity & Inclusion (D&I) portfolio along with a position of an Officer to lead the work in 2019. The intention is to start conversations amongst the students in order to explore issues around gender, culture, race, disabilities and other issues. Ultimately, these conversations must empower, provide tools to manage inclusion and diversity concerns, and heighten sensitivity and awareness. Currently, the D&I portfolio is planning to have webinars, skype calls and workshops in upcoming conferences. As this is a new set of issues being addressed by the society, we would like to learn as we go along, but ultimately develop a guiding framework to build on. This guiding framework can be accessible to other ISIE sections that may wish to roll out a similar portfolio. The guiding framework will be developed using the experiences and lessons from the 2019/2020 engagements as well as consultation with experts in the field of D&I in academia.

Status:

The board has decided that the topic of Diversity and Inclusion is something that should not just be run as a member proposal project, but instead it should feature prominently in the structure of the ISIE itself.

This topic has not been on our radar prominently enough in the past, but we need to seek ways to change this. The board has started the process of making more structural changes including creating a new position for a Diversity and Inclusion Initiative within the society, as well as creating this post in all of the sections. A more detailed update is available in another chapter in this Annual Report.

Industrial Ecology Data Commons (IEDC)

Proponents: Stefan Pauliuk, other interested members of e.g., the IE data task force and open science communities

Sponsors: Kazuyo Matsubae, Jooyoung Park

Summary from the original proposal:

Industrial ecology is a data-intensive field. Currently, most research data is not easily available or difficult to process, which wastes time, slows down progress, and hinders uptake of our results by decision makers and researchers from other fields. Solutions for data sharing like Zenodo or Figshare exist, but they do not use an IE-specific data model or data format. Such model and format now exists in form of the IE data commons prototype (IEDC, <http://www.database.industrialecology.uni-freiburg.de/>), which will soon contain more than 1 million data points in more than 150 datasets from all across the IE community for instant download.

The idea of this proposal is to implement an improved version of this database on an ISIE-operated web server under an ISIE-related official web address improve the data upload and download routines develop business models for its future operation and growth.

Status:

The Board has recently found sponsors for this proposal. The sponsors will work with the proponents to draw up a detailed plan of how this proposal can be rolled out.

Initiatives to support turning research into action

Proponents: Reed Miller, Stefanie Klose, Joe F. Bozeman III

Summary from the original proposal:

Scholars in the growing field of industrial ecology are producing increasingly comprehensive and integrated assessments about the interplay between production/consumption systems and the environment. Yet too often, these important results stay in the pages of journals, and don't lead to the intended awareness raising and changes in policies and practice. It is disheartening to invest years in a research project only to see related pollution levels increase nevertheless.

As researchers, we are thoroughly trained in the methods of our discipline, but have less exposure to the strategies needed to affect change. To address this, the ISIE should create an initiative to support its members, from students through faculty. In designing this initiative, we can rely on our skills as scientists and engineers-- identify a problem (in this case, insufficient impact on policy and behavior), explore its root causes, propose solutions to address the problem, and test their effectiveness. This initiative can evolve over time as we learn from experts and from each other.

Status:

This proposal did not gain enough traction amongst the members to justify immediate action. However, the board proposes that the proponents survey fellow members and find out what parts of this proposals can be modified to make it more suitable. A restructured proposal may be accepted to participate in the voting round at the next AGM.

ISIE Development Board

Proponents: Marian Chertow, Thomas Graedel

Sponsor: Wei-Qiang Chen

Summary from the original proposal:

Most professional societies involving researchers and practitioners sponsor regular meetings, provide student travel scholarships, support academic publishing activities, etc. They use volunteers and paid staff to accomplish these and related activities. All of this costs money, and so most societies also have created a committee of some sort to encourage donations in support of these efforts. ISIE has not yet done so, but should proceed to do so.

Status:

The Board has recently found a sponsor for this proposal. The sponsor will work with the proponent to draw up a detailed plan of how this proposal can be rolled out.

Reduce Air-Travel Carbon Footprint of ISIE Conferences

Proponents: Peter Berrill, Reed Miller, Stefanie Klose, Nathalie Spittler, Ola Stedje Hanserud, Hanna Helander

Sponsor: Stefanie Hellweg

Summary from the original proposal:

Industrial Ecology scholarship contributes to the understanding of the dynamics of carbon emissions and strategies to reduce them to avoid catastrophic climate change. Yet, as a society, each year we invite hundreds of us to travel via aircraft around the globe to meet in person. In time for the 2021 ISIE conference, we should transform our model of interpersonal engagement, and publicize our efforts and strategies so that other societies follow suit. The end goal of this proposal is less air travel by society members for conference purposes. A recent news article targeted conferences, encouraging scholars to either go to fewer in-person conferences, limit travel via multi-site conferences with regional hubs, or virtualise encounters. There is also a group of academics who support each other as they choose to fly less. Scholars at UCSB provides an in-depth introduction to the logistics of virtual conferences, and a dozen scholars extended those suggestions further. ISIE can and should be joining if not leading the conversation on how we can continue to create novel and important research findings, without generating such large amount of GHGs which contribute substantially to one of the main problems we are trying to mitigate.

Status:

We are working on rolling out a number of actions that relate to this topic. A new Conference Committee was formed and this committee has been tasked with better understanding and looking at reducing the carbon impact of conference travel. Input gathered at a Special Session that took place at the Beijing conference is also being used, and one of the organizers of this session has joined this committee. A more detailed report from the Conference Committee can be found in this Annual Report.

▲ International Society
▼ for Industrial Ecology

ISIE Sections

Environmentally Extended Input-Output
Industrial Symbiosis & Eco-industrial Development
Life Cycle Sustainability Assessment
Socio-Economic Metabolism
Students
Sustainable Urban Systems

Members of the ISIE are able to join subject sections as part of their membership. Sections provide a small community within the ISIE through which ideas are exchanged and collaborations are formed. Members can engage on a minimal level or can be considered for leadership positions within a Section.

ENVIRONMENTALLY EXTENDED INPUT-OUTPUT SECTION

Year in review

The EEIO section of the International Society for Industrial Ecology (ISIE) is to develop environmentally extended input-output analysis internationally in academia and to promote its application in policy and businesses. This includes establishing and maintaining cooperation with international organizations, companies, and government organizations. The section may collaborate with the International Input-Output Association (IIOA) when organizing its activities.

In the IIOA conference 2019 held from 30th June to 5th July in Glasgow in Scotland, there were 55 presentations related to EEIOA topics (43 individual presentations and 12 organised sessions). Many of the presentations were given by EEIO-ISIE members.

During ISIE 2019 conference in Beijing, we had EEIO section meeting and announced the replacement of EEIO board members from Tommy Wiedmann (Co-chair), Richard Wood (Co-chair), Alexandra Marques, Joao F. D. Rodrigues, and Keisuke Nansai to the newly elected members.

Participants of the meeting greatly acknowledged their contributions to the section and then had a discussion on our activities to be done in 2020. One idea suggested by a member was holding a workshop on “How to teach EEIO” to share education skills of EEIO among members for further enhancement of the skills.

We will organize “How to teach EEIO” workshop during EcoBalance 2020 held in Sendai in Japan from 8th to 11th September. Invited lectures are Prof. Sangwon Suh (Bren School of Environmental Science and Management, UCSB, USA), Prof. Shigemi Kagawa (Faculty of Economics, Kyushu University, Japan), and Dr Arunima Malik (ISA, School of Physics, The University of Sydney).

The EEIO section meeting will be also held there. For further information, see the EcoBlance 2020 website below.
<https://www.ecobalanceconference.org/conference/2020/index.html>

As of early January 2020, the section had a total of 183 members.

SECTION BOARD MEMBERS

Co-Chair **Keisuke Nansai**

Co-Chair **Kuishuang Feng**

Board Member **Dominik Wiedenhofer**

Board Member **Moana S. Simas**

INDUSTRIAL SYMBIOSIS AND ECO-INDUSTRIAL DEVELOPMENT SECTION

Year in review

2019 was altogether a good year for the IS-EID section. In addition to adding many new members and keeping the members connected and updated via our newsletter and section content we held two physical meetings in China. On the 5th and 6th of July we hosted our annual Industrial Symbiosis Research Symposium (ISRS) in collaboration with the Beijing Economic-Technological Development Area and TEDA. We were inspired by two days of industry park tours, keynotes, updates from around the world, focused presentation tracks, and a very active workshop.

The section also held a well-attended meeting during the ISIE conference at Tsinghua University. Under discussion were the activities of the section and ambitions moving forward into 2020.

Many good ideas were presented such as: New collaboration investigations and communication on best practice and **KPIs for EIPs**; the establishment of informal **regional teams** to assist each other with data, networking, and knowledge sharing; re-invigorating the **symbiosis data** efforts (including e.g. machine learning initiatives; and promoting data sharing), and kickstarting a **webinar/virtual conference series** for both academics and practitioners!

Industrial Symbiosis Research Symposium 2019



To realize these ambitions and make the section even more active and relevant for it's members, we are looking forward to welcoming new engaged academics and practitioners to the Executive and Advisory boards of the section in 2020! New elections are opening this Spring, so please join the section on IS4IE.org for more information or drop us a line at symbiosis.isie@gmail.com.

If would like to read the Chinese news report on the first day of the ISRS and see more photos please visit [this link](#).



SECTION BOARD MEMBERS (EXECUTIVE BOARD)

Chair **Graham Aid**

Secretary and past chair **Peter Lowitt**

Vice Chair **Jose Alfaro**

Treasurer **Michael Martin**

LIFE CYCLE SUSTAINABILITY ASSESSMENT SECTION

Election Results for term 2020-2021

We are pleased to announce the election results for the Life Cycle Sustainability Assessment Section Elections.

Co-Chairs:

Cassandra Thiel - Assistant Professor at New York University in the School of Medicine, the Wagner School of Public Service, and the Tandon School of Engineering.

Wenjje Liao - Associate Professor of Energy and Environmental Systems Analysis at Sichuan University

Board Members:

David Font Vivanco - Life Cycle Specialist at 2.-0 LCA consultants

Haibo Feng - PhD candidate in UBC Canada

Oludunsin Tunrayo Arodudu - Maynooth University

Yuan Yao - Assistant Professor of Sustainability Science and Engineering at North Carolina State University

2019 Beijing Roundup

At the LCSA section meeting of the LS ISIE 2019 Beijing conference, a round table discussion was held on suggested activities of focus. Area of interest included:

- Lead a special issue topic for the Journal of Industrial Ecology with and LCSA focus
The board has explored to option of a special issue related to SDG goal 2: Zero Hunger during 2018-2019
- Highlight feature articles of the JIE pertaining to LCA and LCSA
This has been done in quarterly newsletters starting in 2019
- Foster greater community involvement through social media outlets of Twitter, Wechat, LinkedIn, and Facebook
Needs to be intensified in the future
- Provide a clearinghouse for educational materials used in higher education
Survey has been started (see link below), evaluation will follow soon
- Look for opportunities to collaborate with the very active student chapter of the ISIE
To be explored

New Members

This past year (2019[SP1]) we welcome 33 new members to the LSCA section. We look forward to your engagement in the coming year!

Ask The LSCA Membership

We're continuing to ask your input on courses and materials related to LCA and LCSA:

Life cycle assessment (LCA) & Life Cycle Sustainability Assessment (LCSA) have grown in use over the past few decades. Courses in LCA/LCSA have become more common, and many textbooks and training materials are now available for educating students on the use and interpretation of LCA/LCSAs. The LCSA section of ISIE aims to become a better resource for our members on the texts and tools related to LCA/LCSA training. As such, we would like to collect information on the courses and materials used by our members to teach LCA/LCSA. If you teach an LCA or LCSA related course (at any age/training level),

COMPLETE THIS 11 question survey through the ISIE website: <https://is4ie.org/survey/9>

(copy the address into the web address line after you logged in).

SOCIOECONOMIC METABOLISM SECTION

The socioeconomic metabolism (SEM) section of the International Society for Industrial Ecology (ISIE) is the largest global network of researchers employing material flow analysis as a tool for environmental sustainability assessment. Below, we report important recent and ongoing activities.

SEM Conference 2019

In 2019, the central event related to the session's activities was the 13th conference of the socio-economic metabolism section of the ISIE, which took place from 13-15 May in Harnack Haus, Berlin. In total, we had 101 participants from 19 countries. Perhaps not surprisingly, participants from Europe were the largest group, followed by Asia and Northern America.



Group picture of the 13th conference of the socio-economic metabolism section of the ISIE, May 2019, Berlin.

A big thanks goes to the a great team at PIK Potsdam and the conference chair Helga Weisz and main organizer Peter-Paul Pichler, in particular. While we had a very enjoyable setting for the conference, this is of course only part of the equation as a conference like this depends mostly on the community to provide interesting and thought-provoking talks and discussions during the sessions as well as during breaks and meals. In this respect the conference was a huge success. The community is young, vibrant and exciting but we are also maturing as a field. A number of initiatives have been started within our community to consolidate our core contributions and increase the impact we have on the coming societal transition to well-being within planetary limits. So thank you everyone for visiting us in Berlin, it was a great pleasure to have you! Hope to see you all at 14th SEM conference announced below. For more details, please visit <https://is4ie.org/blog/736>.

Board elections

In the fall of 2019, elections to determine the new board members were held and all section members had a chance to cast their vote. The newly elected board has assigned and will consolidate the different roles of the board members and define the agenda for the coming two years.

Database and data exchange:

We want to strengthen the database of the field and improve access to both raw data and research results by identifying feasible pathways for data integration across the community. This process includes the work on standardized classification for processes and materials in the different branches of MFA, the use of general data models and data formats, and the link to established classifications and taxonomies of objects in the systems that we study. One vision is to make both raw data and research results available on a common platform and make these data easy to archive, find, share, re-use, and improve/update. Another vision is to prepare the results of our work for automatic processing in the future to facilitate the re-use of data in more and more complex models. Details will be elaborated in the spring, and all section members are invited to contribute!

SECTION BOARD MEMBERS

Chair **Hiroki Tanikawa**

Vice-Chair **Stefan Pauliuk**

Secretary **Gang Liu**

Treasurer **Kazuyo Matsubae, Stefan Giljum**

Website Editor **Peter-Paul Pichler, Helen Ann Hamilton**

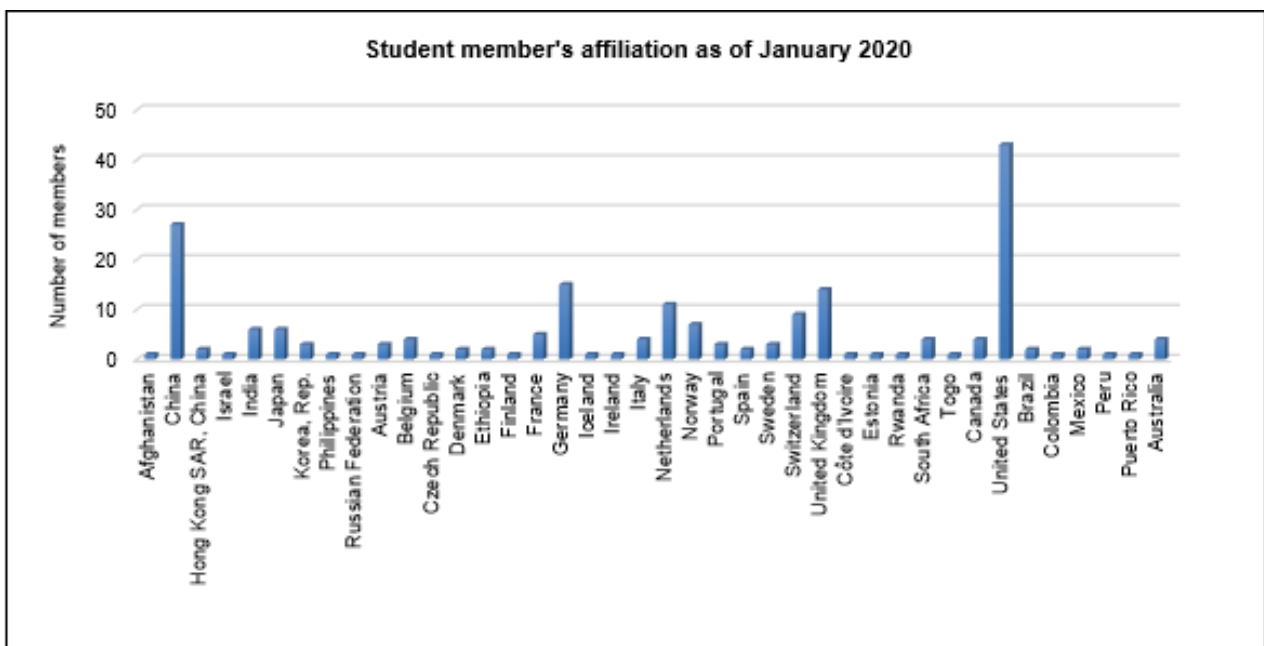
Link to ISIE membership committee **Tomer Fishman**

STUDENT SECTION

Introduction

The section is represented by a board, composed of ten international student in charge of organizing the group’s activities. With a current total of 202 members, representing 39 international countries.

As it stands , the United States has the largest number of member signups (47), followed by a wide spread of European members from 18 countries. However, memberships representing the regions of Africa and South America currently stands at a tally of five participants respectively. Suffice to say that members representing these two regions are strongly encouraged to continue joining us, along with hopes of seeing numbers of new participant sign ups for the regions in the future.



SECTION BOARD MEMBERS

Chair **Zhengyang Zhang**

Vice-Chair **Aishwarya Iyer**

Diversity & Inclusion Officer **Amanda Gcanga**

Vice Diversity & Inclusion Officer **Eliette Restrepo**

Board Member At-Large **Joe Bozeman III**

Board Member At-Large **Diana Ita Nagy**

Board Member At-Large **Glenn A. Aguilar-Hernandez**

Board Member At-Large **Sónia Cunha**

Board Member At-Large **Daniel Itzamna Avila-Ortega**

Accomplishments in 2019

Together, through collaborative efforts among board members, students, and ISIE Council members, we have accomplished a great deal this past year. Just a snapshot of the highlights include:

- Held the second Student Virtual Networking event in March to connect fellow students and post-docs working on similar research topics.
- Organised the Sixth Symposium on Industrial Ecology for Young Professionals (SIEYP VI) and Poster Competition in Beijing, China.
- Successfully securing financial support through the National Science Foundation to support students to attend the SIEYP VI and the main ISIE conference.
- Organised the first Virtual Conference Event on “Turning research into action”; a field trip to the Smart Agricultural Exhibition Center and the International EV Expo; a trip to the Forbidden City during the SIEYP VI in Beijing.
- Held the 2019 Student Chapter Board elections, and elected 6 new members



Figure 1: The first Virtual Conference Event



Figure 3: Field trip to the Smart Agricultural Park

Planned activities for 2020

As always, this annual report gives us an opportunity to reflect on the deeper meaning and purposes of our work. Now we are adopting a more streamlined and purposeful oriented organizational structure that aims to best meet members needs. Continuing in 2020, we plan on :

- Launching a set of Industrial Ecology Peer Groups, creating a student support network for students working on and researching similar topics to share progress, ask questions and allowing the development of a technical and professional network of specialized researchers communities to form and grow.
- Comprehensively revising the student section website, aiming to make it more intuitive, more user friendly and overall, more visually appealing.
- Setting up and organising the “Virtual Networking” event, scheduled to take place twice this year in March and September.
- Driving the initiative to promote “Diversity and Inclusion” and translate it into tangible outcomes.
- Finally : continuing the tradition of passing the torch and welcoming new members by holding the 2020 Student Chapter Board elections.



Figure 2: Student poster awards ceremony



Figure 4: Dinner parties in Beijing

SUSTAINABLE URBAN SYSTEMS SECTION

Year in review

The SUS wants to engage practitioners and researchers by providing a platform for multidisciplinary systems approaches to understand, plan, build, and manage sustainable, healthy, and resilient cities.

The year 2019 was exciting for the SUS section. We had one general meeting that occurred at the ISIE biennial conference in Beijing and a total of eleven board meetings throughout the year. As of early January 2020, the section had a total of 207 members. The SUS board is composed of seven people.

These members were elected in fall 2017 and a board election is scheduled for fall 2020.

In 2019, one of the larger accomplishments included the creation of a SUS student award at the ISIE conference—a model that was then adopted by all sections and mostly run by the student section. The award came with a small cash prize from the Institute for Sustainable Infrastructure (ISI).



SUS Meeting at the ISIE 2019 Conference, Tsinghua University, Beijing

From a reference point of 100 members in September 2017 (when this section resumed activity), membership has grown to 215 members as of January 2020.

In addition to our conference calls scheduled every six weeks, we also had a successful general meeting at ISIE 2019 in Beijing that attracted about 30 people. The meeting generated a great discussion. The topic of urban sustainability is increasingly important. The role of SUS is likely to become even more important as researchers and practitioners tend to look for a networking platform to share their knowledge and produce new knowledge. The picture below was taken at the meeting.

SECTION BOARD MEMBERS

Chair **Sybil Derrible**

Vice-Chair **Oliver Heidrich**

Treasurer and Research Coordinator **Eugene Mohareb**

Secretary **Hua Cai**

Web Editor and Comms Strategist **Matan Mayer**

Professional Liaison Coordinator **Paul Hoekman**

Awards Coordinator **David Bristow**

In addition, the SUS section either organized or was part of many activities from organizing webinars to supporting workshop proposals. Here is a list of the activities that the SUS section was part of in 2019:

Support of special issue in the Journal of Industrial Ecology on “Industrial Ecology for Climate Change Adaptation and Resilience”—two out of the nine editors are SUS board members and six out of the nine are SUS members.

- Creation of SUS section student award for ISIE 2019 in Beijing.
- Organization of tour of the Beijing Planning Exhibition Hall at ISIE 2019.
- Support of the workshop “Urban metabolism in policy and practice” on the theme of “solid waste” organized by the Metabolism of Cities at ISIE 2019
- Organization of a special session at ISIE 2019 on “Teaching Urban Sustainability.”
- Continuation of the successful Members Spotlight program that was moved to a monthly post.
- Organization of two webinars: (1) “Sustainability Through The World’s Cities” by Daniel Hoornweg and (2) “An introduction to MultipliCity - an online data warehouse for stocks and flows information” by Paul Hoekman.
- Creation of a survey on the need to create an urban sustainability conference that was completed by 41 people.

This last item led us to create a new (un)conference that will happen in June 2020 in Segovia (Spain), hosted by Matan Mayer (SUS board member). More on the conference can be found at:

<https://ascus.metabolismofcities.org/>. A separate organizing committee has been established for the 2020 Actional Science for Urban Sustainability (AScUS) unconference. AScUS (pronounced ‘ask us’) will have a new format without any presentations and remotely accessible.

As a last note, sadly, one SUS board member, Natalia Uribe, stepped down from her position in 2019 because her professional life has led her to another direction. Natalia had been instrumental to SUS since she had joined the board and she is sorely missed.

Please do not hesitate to contact any board member for further information. Be aware that we are always looking for active members and suggestions on how we can make the SUS work for you. As stipulated in the bylaws, elections for board members are held every three years by section members and a new board will be elected November 2020. We therefore look for volunteers to step forward to help govern, shape, and manage the SUS section in its mission to engage practitioners and researchers.



▲ International Society

▼ for Industrial Ecology

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