



ISIE ANNUAL REPORT

2022

▲ 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



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PRESIDENT'S REPORT



**STEFANIE
HELLWEG
PRESIDENT**

It is a pleasure to invite you to read our fourth annual report, which presents the vibrant activities of our society in the year 2022.

2022 was a year in which many things for ISIE started to go back to a new normal. ISIE tried to merge the best of the pre- and post-Covid world: On the one hand, we finally could meet again in person at the Gordon Research Conference in Maine and at Section conferences like the ISIE-SEM conference in Vienna, although still with limited attendance from some regions. On the other hand, we continued online conferences like IE Day. Both types of meetings were a great success and were well appreciated. In 2023 we will conduct our biannual ISIE conference in Leiden, and all the preparations are well on track for a wonderful “big in-person event” after our last meeting in Beijing four years ago. It seems like the years of uncertainty of the pandemic are – at least for the moment – largely overcome.

While the challenge of the pandemic moved to the “background”, the dramatic geopolitical developments got into the focus of public attention in many parts of the world in 2022.

Long-term environmental challenges also continued to hit– sometimes silently, sometimes with evident disasters like the floods in Pakistan. After a short dip in global greenhouse gas emissions during Covid, the world has emitted more greenhouse gas emissions in 2022 than ever before. Also biodiversity and other environmental effects continued to increase. All these developments are severely threatening our future. This is why developing solutions for grand environmental challenges needs to be integral to the strategy of ISIE to answer policy-relevant questions and contribute ISIE’s knowledge to inducing a turn to these detrimental developments.

At the Gordon Research Conference in the summer of 2022, a new section was created on designing a sustainable circular economy. This was one step in the direction of widening ISIE’s portfolio of crosscutting sections on policy relevant topics with high leverage to mitigate environmental impacts. The goal is to bundle our activities in those topics and exploit synergies to make a larger scientific and practical contribution. One exemplary output of joint crosscutting collaborations was the new White Paper “Ten insights from industrial ecology for the circular economy“, authored by members of the previous Circular Economy Committee (led by Stijn Van Ewijk and Weslyne Ashton) and published in 2023.

This is a prime example of successful collaboration within the ISIE to leverage academic and ultimately social and policy impact.

The ISIE is newly supported by a Foundation created in 2022. Goals of the Foundation include expanding the membership and raising funds e.g. for student grants and providing educational material.

Let me close by thanking everyone for the great collaboration in 2022 – in particular Ned Gordon as executive director, taking care so thoroughly of the many small and big ISIE matters, Simron Singh (previously Tim Baynes) as Secretary with many diverse activities which make ISIE “flow”, Matt Eckelmann (and previously Valerie Thomas) as Treasurer taking care of financial planning and many tedious banking issues, and Ming Xu, who will take over the presidency after the AGM and participated already in 2022 in biweekly meetings of the so-called “executive team”! In 2022 we were also happy to welcome Irena Bitunjac on board the team, who is creating and polishing our social media appearance as outreach manager and takes care of administrative duties.

Special thanks go to our sections, who organized multiple events and meetings, and provide a platform for exchange of ideas and collaboration. This Annual Report provides a good overview of the many activities. I would also like to thank all members of dedicated committees which provide very valuable services to the ISIE and its members, including new membership-driven committees like the career committee.

Finally, I would like to thank the ISIE board members, who gave much input and made important decisions on behalf of the ISIE, and also our broad membership, which co-shaped the society activities on many occasions (including this annual general meeting).

This was the final year of my presidency and I wish Ming Xu all the best in going forward.

Please enjoy reading the 2022 annual report!

MEMBERSHIP REPORT



**SIMRON J.
SINGH**
SECRETARY

In 2022, there was a gradual shift towards resuming face-to-face activities after the prolonged period of virtual events due to the COVID-19 pandemic. However, despite this change, most events and activities continued to be held online. Despite these challenges, the ISIE network has proven to be incredibly resilient, with membership levels reaching an all-time high 900+ members by the end of 2022. However, the society experienced some losses in membership during the December renewal phase, and there are currently 677 members (as of March 2023) spread across 50+ countries. As the forthcoming ISIE conference is scheduled for July 2023, it is anticipated that several members will renew their membership in anticipation of the event.

The Board of the ISIE Society, along with its various sections and committees, have made significant efforts to provide members with valuable resources and information related to industrial ecology. One of the major initiatives undertaken by the society was to broaden its focus to include topics related to the circular economy.

This shift was made in recognition of the fact that in effect industrial ecology is the science for a circular economy.

The International Industrial Ecology Day, which was held on November 30th, 2022, proved to be an effective platform for attracting new members to the ISIE Society. This event, which is an annual celebration of the principles and practices of industrial ecology, provided an opportunity for the society to showcase its work and to engage with individuals and organizations that share its mission.

One of the factors that continues to contribute to the success of the ISIE Society in attracting new members is lowering membership fees in the past to make it more affordable for a broader range of individuals to join. Additionally, the society has been actively encouraging student membership to attract the next generation of professionals who are interested in industrial ecology.

	2021	2022	2023
<i>Student</i>	256	303	309
<i>Regular</i>	192	357	290
<i>Professional</i>	42	71	65
<i>Courtesy</i>	5	8	13
Total	495	739	677

Table 1 Comparison of ISIE membership at the beginning of years 2020, 2021 and 2022

Another important aspect of the ISIE's strategy has been to support member-led initiatives. This approach recognizes that the strength of the society lies in its members and their collective efforts to promote industrial ecology research. By providing resources and support to members who are interested in developing their own initiatives, the society is able to leverage the skills and expertise of its members to create a more vibrant and dynamic community.

Throughout 2022, the ISIE Society experienced growth in membership across all its sections (see Figure 3). Of particular note is the sustained growth over the past four years in the number and proportion of student and young professional members. This trend is a positive indicator of the society's ability to attract and engage the next generation of professionals in this field.

The increasing number of student and young professional members is a particularly positive trend for the society. This group brings fresh perspectives and new ideas to the table, and their enthusiasm and energy can be a driving force for change within the society and the broader community. Moreover, the growth of this group of members has a significant impact on the overall membership numbers of the society. In fact, it appears that this group is influencing the variation in membership more than any other group combined.

The society recognizes the importance of supporting and nurturing its student and young professional members. The society invites and supports member proposals from the student body on initiatives that ensure that they have access to the resources, mentorship, and networking opportunities they need to be successful in their careers. By fostering a strong sense of community among its members, and by providing opportunities for professional development and growth, the society is well-positioned to continue attracting and retaining the next generation of leaders in industrial ecology.

Where is Our Membership?

Membership in the ISIE Society has been growing steadily across the world. While Europe and North America have seen an increase in absolute numbers, the growth in Asia has been the highest, with representation increasing from 28% to 32% between 2021 and 2022. As a result, Asia has now become the second-ranked global region in terms of representation in the ISIE Society.

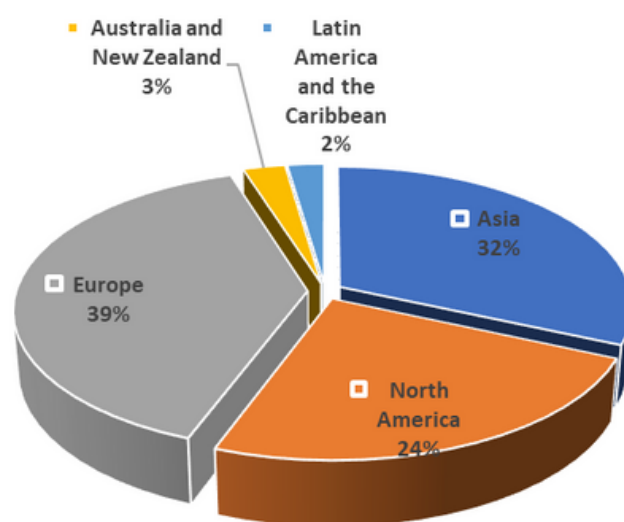


Figure 1 ISIE membership by percentage across global regions at the end of 2022

Within Asia, China continues to have the highest number of members, even with a slight decline from 122 in 2021 to 114 in 2023. Since 2020, the ISIE Society has been working to extend its reach and to include members from a wider range of countries. This effort has been successful, with new members joining from countries such as the Democratic People's Republic of Korea, Ecuador, Lao People's Democratic Republic, Morocco, Pakistan, Poland, Puerto Rico, Romania, Qatar, United Arab Emirates, and Zimbabwe. This expansion of the society's membership base reflects the growing recognition of the importance of the field of industrial ecology and the role of the society in promoting these practices around the world.



Figure 2 ISIE membership map across world regions

Overall, the growth in membership and the expanding geographic reach of the ISIE Society are positive trends that reflect the ongoing commitment of ISIE to engaging a diverse and inclusive community of scholars and professionals.

Members Involved in Sections

The ISIE has seen an overall increase in membership in 2022, which has translated to growth across all its Sections. Although the total ISIE membership was close to 900 at the end of 2022, the sum of membership across all Sections appears to be 2,331. This suggests that, on average, an ISIE member is involved in two to three Sections, highlighting the diverse range of interests and expertise of the society's membership.

This high level of engagement and participation across Sections is a testament to the value that members derive from their membership in the society. It also underscores the important role that the society plays in fostering collaboration, knowledge sharing, and innovation across a broad range of industrial sectors, academic disciplines, and geographic regions.

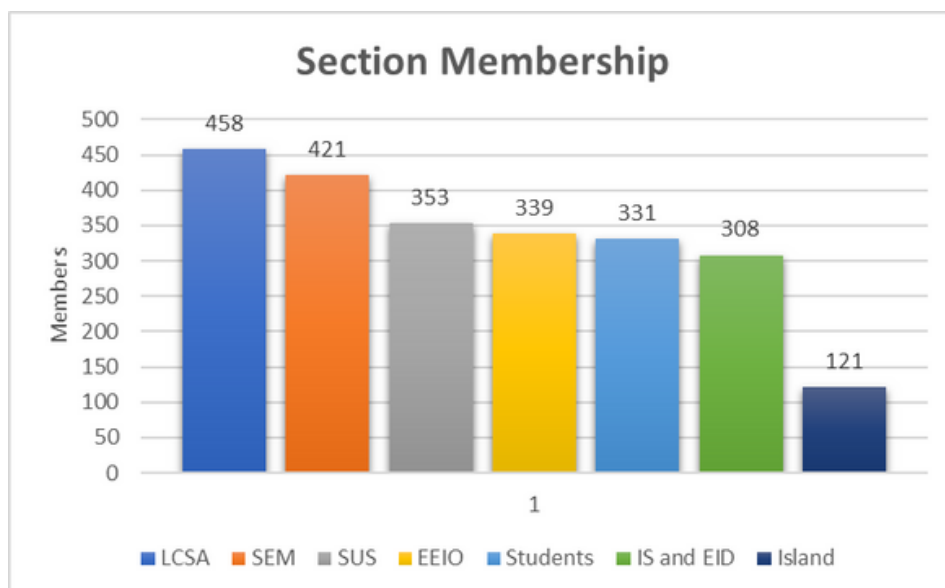
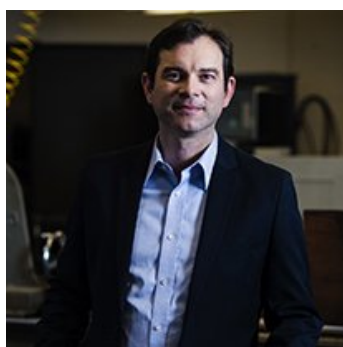


Figure 3 Membership of Section Totals at the end of 2022

FINANCIAL REPORT



**MATTHEW
ECKELMAN**
TREASURER

The ISIE is in a stable financial position, as the major changes undertaken in prior years - incorporating as an independent entity in the Netherlands and taking over ownership of the JIE - become clear in their advantages.

Income: The Society has three principal sources for generating funds: membership subscriptions; donations; and net proceeds from biennial conferences. 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. Total membership and donations for 2022 amounted to €29,322, more than €10,000 greater than was expected, thanks to a strong membership increase.

Staff Expenses: There are two main paid positions within the ISIE: the Administrative and Outreach Manager running the secretariat, and the Executive Director. In 2022, these remunerations were approximately half of our expenses. In addition, the Secretary and the Treasurer receive a modest remuneration.

Office Expenses: Apart from staff, our operating expenses are lean by design, totaling less than €5,000. The great majority of this is for website management and legal fees. There are also minor expenditures on banking fees.

Travel: The ISIE supported travel for the Executive Director to attend the Gordon Research Conference in Maine, USA.

Scholarships and Awards: The ISIE spent €10,000 to support scholarships for students to attend the Gordon Research Conference, and has budgeted €15,000 to support students in 2023 to attend the biennial conference in Leiden. In addition, the ISIE provided prizes and awards for the Laudise Prize, a Cartoon competition, and poster awards for the SEM section.

Projects and Initiatives: Several member initiatives were initiated in 2022 but did not incur expenses in this year. These ongoing initiatives and those that will be considered by the AGM this year will make up a prominent part of the 2023 budget. The one budgeted initiative that did incur partial expenses was the organization of JIE handover events and celebrations, and the remaining budget for this initiative will be paid out in 2023.

Journal of Industrial Ecology: The ISIE has assumed ownership of the Journal of Industrial Ecology (JIE). Official handover of the JIE from Yale to the ISIE was delayed into 2022 and so the cash flows did not match what was budgeted, but ended with a surplus of more than \$10,000. The 2023 budget submitted by the JIE will cover expenses for all editorial services and other expenses and is expected to have a surplus of nearly \$7,000.

Reserves: The ISIE began the year with €180,506, all in EUR. During 2022, we opened an account in USD in order to minimize banking fees from currency conversions. At the end of 2022, reserves were €128,329 and \$74,536, or an equivalent of €198,393 at prevailing exchange rates. Approximately €22,500 of this is earmarked for activities that were budgeted for 2022 but have not yet been completed or paid out.

ISIE 2023 Proposed Budget

	2022 Budgeted	2022 Actual	2023 Budgeted	2024 Projected
Income (€)				
Memberships and Donations	18.000	31.754	26.000	28.000
Conference Income	-	-	50.000	-
Journal of Industrial Ecology Income	82.855	82.882	103.347	104.559
Journal of Industrial Ecology prior payments	38.611	38.611		
Total income	139.466	153.246	179.347	132.559
Expenses (€)				
Remunerations				
Administrative Services	(9.902)	(8.400)	(14.400)	(9.600)
Executive Director	(13.325)	(16.107)	(13.200)	(14.400)
Secretary Remuneration	(2.500)	(2.500)	(2.500)	(2.500)
Treasurer Remuneration	(2.500)	(2.500)	(2.500)	(2.500)
General expenses				
Accounting Software	(258)	-	-	-
Credit card fees	(540)	(788)	(645)	(695)
Banking Fees	(255)	(429)	(200)	(220)
Website Management	(3.300)	(3.326)	(3.350)	(3.685)
Other costs	(206)	-	-	-
Legal Regulatory, and Insurance	(3.000)	(1.089)	(1.200)	(1.320)
Travel				
Executive Director and Administrator	(2.000)	(1.748)	(5.000)	(2.000)
Scholarships and Awards				
Conference Scholarships	(10.000)	(9.997)	(15.000)	(10.000)
ISIE Awards	(750)	(2.475)	(1.750)	(1.000)
Projects and Initiatives				
JIE Special Issue and Handover Organization	(2.000)	-	-	-
Member and Board Proposals	(22.500)	-	(25.000)	(10.000)
Journal of Industrial Ecology				
Journal of Industrial Ecology	(109.650)	(85.138)	(97.003)	(91.931)
Journal of Industrial Ecology carry-over	-	(16.643)	-	-
Total expenses	(182.686)	(151.141)	(181.748)	(149.851)
Net income (€)	(43.221)	2.106	(2.401)	(17.293)
Start-of-year reserves*	180.536	180.536	182.642	180.240
End-of-year reserves*	137.315	182.642	180.240	162.947

*equivalent in €; separate currency reserves and obligations listed in balance sheet

(average 2022 exchange rate of 1 USD = 0.951 EUR applied to USD transactions)

(red text indicates 2022 obligations paid in 2023)

ISIE 2022 Balance Sheet

Balance sheet					
31-Dec-22					
Current Assets	<i>EUR</i>	<i>USD</i>	Current Liabilities	<i>EUR</i>	<i>USD</i>
Cash Unrestricted	102,261.32	74,536.25	Accounts payable	5,000.00	17,500.00
Acct receivables	0.00	0.00	Other liabilities	0.00	0.00
	102,261.32	74,536.25			
Restricted funds	<i>EUR</i>	<i>USD</i>	Equity	<i>EUR</i>	<i>USD</i>
Laudise Medal	10,669.11		2021 earnings	-341.85	0.00
Scholarship Fund	15,035.83		Retained Earnings	123,671.13	57,036.25
Metabolism	1,391.37			123,329.28	57,036.25
Development	363.02				
	26,067.96				
TOTAL Assets	128,329.28	74,536.25	TOTAL Liabilities and Equity	128,329.28	74,536.25

DEVELOPMENT BOARD REPORT

In 2022, the ISIE Development Board explored ways to increase monetary gifts to the ISIE. There has been a consensus among the members of the Development Board that donations to the Society might be significantly increased if contributions were tax deductible. Gjalt Huppés kindly agreed to explore what would be required for this in the Netherlands. His research indicated that the way to do this was to create a charitable foundation separate from but linked to the ISIE. The ISIE Foundation was successfully established over the summer and the Foundation's board (Gjalt Huppés, Ester van der Voet, and Gijsbert Korevaar) began working on establishing a bank account and having the Dutch tax office approve the Foundation for tax deductible donations. One bank has declined a bank account, but efforts are still ongoing. As part of a requirement of the tax office, the "ISIE Foundation Policy Plan" (a slightly modified version of a document approved in the September ISIE board meeting) was created and posted on the ISIE website. Two additional documents were also posted on the website and then Gjalt submitted the application to the tax office. Unfortunately, he has just learned that the ways in which the relationship between the ISIE and the ISIE Foundation was structured is not allowed for a tax exempt entity. The Development Board, the ISIE Executive Team, and the ISIE Board are exploring how best to respond to this development.

A second area of focus in 2022 was on a project for posting educational resources on the ISIE website. The ISIE Development Board team working on establishing the ISIE website as a source of information about educational resources for industrial ecology, led by Lynette Cheah, continued to work with Ned Gordon on some final modifications to this feature of the website. These final changes have now produced a website section with the key desired attributes.

See <https://is4ie.org/resources/educational>. Lynette is also exploring ways to share the actual resources with members who do not have access to them through their institutions.

A final item addressed by the Development Board in 2022 was the revision of its bylaws. These bylaws establish the size of the Development Board as between 6 and 15 members. The bylaws were approved by the ISIE Board on 13 September 2022.

The document is available at <https://is4ie.org/resources/documents/80>.

NOMINATING COMMITTEE REPORT



SHWETA SINGH
MEMBER



RUPERT MAYERS
MEMBER



TAMAR MAKOV
MEMBER



XIN TONG
MEMBER



XIAO LI
MEMBER



STEFANO CUCURACHI
MEMBER



HEINZ SCHANDL
IMMEDIATE PAST-PRESIDENT

ISIE Election Report

Process of Candidate Selection – The Nominating Committee evaluated the existing and future projected members of ISIE roles for diversity in regional representation, gender & racial diversity and diversity in experience level. A first shortlist of candidates was formed. Additional nominations were suggested and discussed to add to the potential candidate list for roles where there were shortfalls of potential candidates, until all ISIE roles up for election had at least two candidates standing. The Committee also made a note of being inclusive of gender neutrality/LGBTQ community to be all inclusive in future election announcements.

List of Final Selected Candidates for ISIE roles

Candidate	Position	Geographical Location/Gender/Position
Arnold Tukker	President Elect	Europe/Male/Professor
Anu Ramaswami	President Elect	US/Female/Professor
Valerie Thomas	President Elect	US/Female/Professor
Dominik Wiedenhofer	Nominating Committee	Europe/Male/Senior Scientist
Reid Lifset	Nominating Committee	US/Male/Research Scientist
Joe Bozeman III	Nominating Committee	US/Male/Assistant Professor
Benjamin Sprecher	Nominating Committee	Europe/Assistant Professor
Shoshanna Saxe	Board Member	Canada/Female/Associate Professor
Jonathan Cullen	Board Member	UK/Male/Professor
Junming Zhu	Board Member	China/Male/Assistant Professor
Ramzy Kahhat	Board Member	Peru/Male/Professor

Final Results and Announcement of Election Results

Result Announced – Feb 25th 2023 via email

President Elect – Arnold Tukker

Nominating Committee Members – Dominik Wiedenhofer and Reid Lifset

Board Members – Shoshanna Saxe and Jonathan Cullen

Total number of Voters – 218

Issues with Election Process during 2023 Election

This year the voting period had to be extended by 1 week because of issues with the website and needing extra time for the President Elect nomination.

Future Elections and Suggested Improvement in Election Process

Reviewing the election process, we recommend the following improvements for future elections

-Nominations: First challenge is that ISIE members are not engaged in nomination process. This is an observation over 2 election cycle. By the deadline of Dec 10th, we only had 5-6 nominations and that too made by only couple of people. Currently there may be a bias in nominations by few engaged members which reduces the outreach of society to engage new members. We will need to figure a way for increasing nominations by ISIE members.

-Voting: Again, voting may be biased as only few regions may be participating heavily. This discourages participants from regions that are not well represented in ISIE membership. This is a speculation (so may need thorough analysis). We may advise ISIE to review the membership distribution and add weights to the vote from certain region in an effort to improve diversity of candidates winning election and joining ISIE leadership.

-Elect two independent observers outside Nominating Committee to observe the election process (elected by Voting by Nominating Committee).

-Nominating Committee Chair to send the election report to the independent observers for comments.

-Chair to respond to comments / incorporate feedback and send updated election report to Nominating Committee member for approval within 48 hours

-Nominating Committee approves election report

-Election results announced if approval has been given

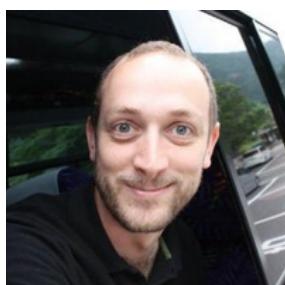
-Begin the election process earlier by setting a preliminary meeting in September/October to start the election process and invite nominations

-Committee Member Participation: Mandate attendance of committee meetings by all Nominating Committee Members. If for some critical reason they cannot attend meetings, they should send their nominations by the deadline using email or through website and must remain engaged and contribute in a timely manner.

CONFERENCE COMMITTEE REPORT



**ANNA
PETIT-BOIX
CO-CHAIR**



**TOMER
FISHMAN
CO-CHAIR**

New guidelines for the future of ISIE conferences

The Conference Committee is excited for this year's Biannual Conference in Leiden, which is a unique opportunity to test some of the knowledge we have gathered in the last few years. In fact, one of the tasks of the Committee was to update the guidelines for potential conference hosts, which will soon be used to release a call for hosts of the ISIE Biannual Conference 2025.

Since 2019, this Committee has learned from the membership and through the membership. We launched a survey in 2019 to know more about the membership's needs, experiences and expectations (you can find the main results in the 2019 Annual Report).

During the pandemic, we learned from the Society's efforts to host online conferences, such as the ISIE Americas or the Perpetual SEM Conference. In times of uncertainty, we produced a report on the challenges and opportunities of ISIE online conferences thanks to collective input from conference hosts and participants. Through the Industrial Ecology Day we delved into new formats, aiming to encourage innovation.

With these inputs, we adjusted the call for conference hosts. Our main goal is to stress the need for higher environmental and social standards in ISIE conferences. We encourage potential hosts to monitor their environmental footprint, take action to reduce the impacts of conference travel (not only catering services!) and make their conferences and venues a safe space for participants from various disciplines, professional profiles and identities.

The new guidelines will soon be available and input from the membership is always welcome! The conference committee plans to continue envisioning the future of sustainable conferences and member events in the post-covid world in the next year.

CAREER COMMITTEE REPORT



**REED
MILLER**
CO-CHAIR



**KIMBERLEE
ZAMORA**
CO-CHAIR

During the April 2022 Annual General Meeting, a proposal was put forward to form a Jobs Committee, with the initial purpose of improving the ISIE Job Board page and facilitating exchange of industrial ecology career know-how. With a majority vote in favor of the proposal, the committee began meeting in August 2022. There was enthusiasm around coordinating a variety of activities related to careers more broadly, so it was expanded and rebranded.

The rebranded Career Committee is composed of two subcommittees: 1) Jobs and 2) Mentorship and Professional Development (MPD). We began with brainstorming a wide set of potential projects and have since narrowed to near-term goals.

The initial goal of the Jobs subcommittee, led by Reed Miller, is to help ISIE members and the IE community at large become aware of and identify jobs in IE. We hope to introduce ISIE members to positions they may not have considered, and to encourage employers to consider our members. In the near-term we intend to:

- Work with web developers to improve the functionality of the ISIE job board
- Establish links to other job resources outside of the ISIE job board

The initial charge of the MPD subcommittee, led by Kim Zamora, is to support the professional development and networking of early-career industrial ecologists through a mentorship program. The committee will collaborate to expand connections with IE careers on ISIE social media platforms such as LinkedIn. Another charge of the subcommittee is developing a mentoring program to pair senior members of ISIE with junior and emerging industrial ecology members

Excitingly, 18 wonderful ISIE members have volunteered to serve on the committee and have attended several Zoom meetings. Most committee members are somewhere along the academic career path and several are in industry; more industry representation is sought. Also, more members from other regions outside of Europe and North America are invited to join and share your perspectives!

INTERNATIONAL INDUSTRIAL ECOLOGY DAY REPORT



**HEINZ
SCHANDL**
CO-CHAIR

**WESLYNNE
ASHTON**
CO-CHAIR



**CHRISTINA
MADRID LOPEZ**
CO-CHAIR

**EUGENE
MOHAREB**
CO-CHAIR



Industrial Ecology Day was established in 2021 to compensate for the fact that the International Conference could not take place because of the pandemic restrictions. The aim of the Day was to connect the IE community across the globe but also to attract a broader audience who are interested in industrial ecology research. After a successful inaugural IE Day, the ISIE decided to establish the Day as a more permanent activity.

Organization

The preparations for the second IE day started at the end of summer 2022, after a decision was made to continue with the organization for year 2022 in board meeting of July 5th 2022. Actual preparations started in September.

The day was set on November 30th to avoid bringing it too close to Christmas and with the hope that this date could be fixed every year. However, the organization was aware that on occasional years this might be overlapping with US Thanksgiving.

In general, the organization was smooth. A decentralized strategy was chosen in which different members of the organizing committee were responsible for finding volunteers to organize sessions within their relevant time zones.

The committee met once every other week to track development with the following distribution:

- Heinz Schandl– Asia and Pacific
- Eugene Mohareb and Cristina Madrid – Europe and Africa
- Weslynn Ashton - The Americas

The communication with African colleagues was more difficult, with longer times of response; this is primarily due to the relatively small membership in Africa, and the corresponding smaller pool of potential presenters, as well as an attempt to engage presenters who fit the theme.

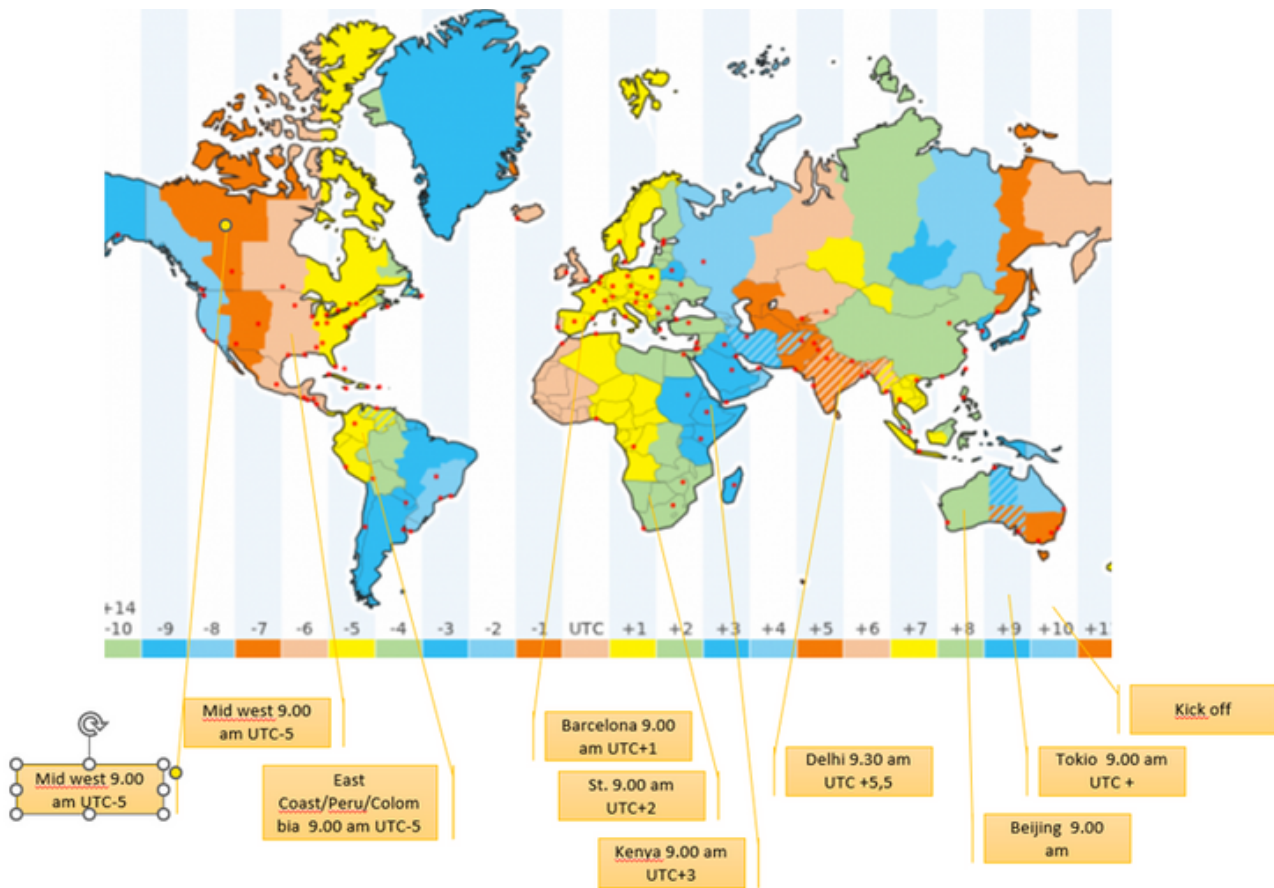


Figure 1. Summary map in the webpage of IE day

This should be taken into account for next IE day editions: a larger number of prospective African presenters should be contacted in the first instance, if the desire is to fit presentations within a theme. Otherwise, a call should go out earlier to engage a broader group of prospective presenters. Other than that, the organization was smooth, with some delays in the closing of a few sessions that align with previous experiences of event organization.

Regarding dates, the organization set a deadline to have the description and speaker list of sessions for beginning of November, met by almost all sessions. The save the date was first uploaded on the ISIE website and other channels (Linked-in) by late October and the final program was uploaded by mid-November.

Because time was narrow, the committee decided not to do an open call for sessions and call for sessions on a by-invitation basis. This was not well received by some members of our community that expected a similar open call to the one of the previous IE Day. Still, step-up proposals of ISIE members were accommodated in the calendar. The open call for sessions could be indeed valuable and allowing time to do an open call seems necessary to ensure that prospective hosts are able to put forward their ideas. As well, this will likely ensure a higher level of enthusiasm from organizing hosts, and less chasing by the organizing committee.

For future editions, it is advisable to start organization with more time to allow for this open call, and to allow time for members in all lands to have time to answer and organize (different cultures have different timings). This is a recommendation of schedule to be considered by the next committee:

- Agreement on date and save the date: 6 to 9 months in advance
- Open call for events: about 5 months in advance
- Decision if all events should be organized: 4 months in advance
- Set of session topics, times durations and invitation to panelists/speakers by session organizers: 3 months in advance
- Return of session information for advertising and advertising of full program 2 months in advance

Infrastructure

The committee decided to not to set a general e-frame for either the invitations or the online sessions. Every session organizer was free to choose their platform to manage attendees and the development and format of the online session (allowing interaction of the public by video or with a written Q&S service only for example). The feedback was positive by sessions organizers as it made the use of technology smoother.

The website's registration feature was used alongside a posting of the access link on each page in the program. There were some concerns that the attendees might not be able to find the links or not be able to register using the site (the site's program was only available for registration for ISIE members). In hindsight, this was a prudent approach as it allowed non-member attendance, but it's not clear if attendees used the joining link from the program or the ISIE website's registration page.

In the future, if non-members are not invited, it may be worthwhile to just use the ISIE registration page and

include the access details (i.e., zoom link, Teams link) on those integrated pages (a notice does go out to members from the ISIE system 2 hours before the event, followed by one 10 minutes before the event) The save the date was advertised in the ISIE website:

<https://is4ie.org/events/event/international-industrial-ecology-day-2022-1>.

The final program was uploaded on the ISIE website:

<https://is4ie.org/events/event/international-industrial-ecology-day-2022-1/program>

Linked-in links can be found in the annex.

Note that the links to each session take the user to a specific event page with all information about the session, speakers and organizers, the registration link (if any) and the event link if it was open. All posts were announced also on our ISIE twitter and facebook pages. This did not prevent the advertisement of events individually on any platform, particularly on Linked in and Twitter, which seemed good places due to the easy access and extend of the network.

Session development

We had 14 sessions included in the annex. All types of sessions were allowed but due to time restrictions all sessions ended in panel-type discussions.

Most of the sessions had a duration of one hour with a couple lasting a bit longer. In general lines there was little overlapping except for the events of the European time zone, due to the amount of members in these lands. The committee registered the following attendance:

- Australia - 79
- Japan - 29
- Beijing - 70
- India - > 40
- ISIE Event (Norway) - 50
- Germany - 55
- UK - 37
- Spain - 35
- Latin America - 20
- USA (east) - 30
- US (west) - 5

Annex

Table 1. Full program IE day 2022

Nov 30, 2022 00:00-01:00	10:00 - 11:00 AM (AEST) Reducing carbon emissions, resource use and waste in an extractive and consumer economy (23:00 UTC)
Nov 30, 2022 01:00-02:00	9:00 - 10:00 (JST) Challenge to Establish Carbon Neutral and Jyunkangata society with environmental systems analysis (00:00 UTC)
Nov 30, 2022 03:00-04:00	10:00 - 11:30 AM (CST) Linking National Green, Low-Carbon Transitions with the Global SDGs (02:00 UTC)
Nov 30, 2022 06:00-07:00	10:30 - 11:30 (IST) Role of Consumers in Driving Circular Economy in Developing Countries (05:00 UTC)
Nov 30, 2022 09:00-10:00	09:00 - 10:00 AM (CET) - 25 Years of Impact: Part I – Reflections of Journal of Industrial Ecology Authors and a Bibliometric Analysis (08:00 UTC)
Nov 30, 2022 10:00-11:45	10:00 - 11:45 (CET) - Cutting-edge applications of industrial ecology in the built environment (09:00 UTC)
Nov 30, 2022 10:30-12:00	10:30 - 12:00 (CET) The challenges of the energy transition (9:30 UTC)
Nov 30, 2022 12:00-13:00	11:00 - 12:00 (GMT) - Advancements in LCA Applications in the Built Environment (11:00 UTC)
Nov 30, 2022 13:00-14:30	13:00 - 14:30 (CET) - Circular Economy modelling and indicators at the macro scale: current status and research needs (12:00 UTC)
Nov 30, 2022 14:00-15:05	08:00 - 09:05 (EST) Sustainable Islands Futures (SIF) symposium (13:00 UTC)
Nov 30, 2022 15:00-16:00	09:00 - 10:00 (EST) Urban Stocks: Perspectives from the Global South (14:00 UTC)
Nov 30, 2022 17:00-18:00	10:00 - 11:00 (CST) At the Intersection of Sustainable Urban Systems and Circular Economy (16:00 UTC)
Nov 30, 2022 19:00-20:00	9:00 - 10:00 (PST) Closing the Loop: Opportunities to Advance the Circularity of Organic Waste (18:00 UTC)
Nov 30, 2022 20:00-21:00	11:00 AM – 12:00 PM (PST) - 25 Years of Impact: Part II – Reflections of Journal of Industrial Ecology Authors (19:00 UTC)

Table 2. List of general advertisement pages

1. Get Ready for IE Day

<https://www.linkedin.com/feed/update/urn:li:activity:6998958784773525504>

2. The final programme for International Industrial Ecology Day 2022 is now up

<https://www.linkedin.com/feed/update/urn:li:activity:7000494162940735489>

3. Opening of the IE Day

<https://www.linkedin.com/feed/update/urn:li:activity:7001855371367604224>

4. The full program of the IE Day

<https://www.linkedin.com/feed/update/urn:li:activity:7002937250292350976>

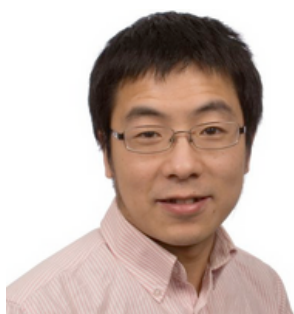
5. Happy International Industrial Ecology Day

<https://www.linkedin.com/feed/update/urn:li:activity:7003645081953923072>

6. The Industrial Ecology Day 2022 webinars are now online

<https://www.linkedin.com/feed/update/urn:li:activity:7031937067697717249>

JOURNAL OF INDUSTRIAL ECOLOGY REPORT



GANG LIU
CO-EDITOR-
IN CHIEF



**RICHARD
WOOD**
CO-EDITOR-
IN CHIEF



**JUNMING
ZHU**
CO-EDITOR-
IN CHIEF

2022 in review and plans for 2023

2022 was a year of transition for the JIE. The Journal is under new leadership, now led by Gang Liu (at Peking University), Richard Wood (at NTNU and University of Newcastle), and Junming Zhu (at Tsinghua University), with Reid Lifset serving in an advisory role as Founding Editor. Many interesting and innovative papers continue to be published in the Journal, including on the role of industrial ecology in circular economy research, the energy transition, advancements in life-cycle assessment, and material flow analysis. The impact factor of the JIE increased again, up from 6.9 to 7.2.

Various special issues, and now virtual special issues (online compendiums of previously published JIE articles), on timely topics were published in 2022. In February, a special issue on Data Innovation in Industrial Ecology (<http://bit.ly/JIE-DataInnov>) presented research on the acquisition, management and use of data in our field.

The better creation and curation of data sets is fundamental to the field and the integration of IE methods. The Journal supports this through various requirements for the publication of data that accompanies articles, and this special issue furthers the effort with a number of exciting articles that push the frontier of “how” in the field forward. A further recognition of efforts in this area was undertaken with the curation of a virtual special issue that highlighted all JIE articles that have been awarded data openness badges (<http://bit.ly/JIE-DB-VI>). This will be updated on a continuous basis.

A second (completely open access) special issue on Industrial Ecology for the Oceans was published in December (<http://bit.ly/JIE-Ocean>), which engaged with various facets of IE in relation to the marine environment and “blue” economy. Society is increasingly looking to exploit resources from our oceans, and we expect this area to be of high relevance to academics in the future.

Another virtual special issue was published entitled “Celebrating 25 Years of the Journal of Industrial Ecology,” highlighting 25 especially important papers published in the Journal since its founding (<https://bit.ly/JIE-25-Years>). As part of this 25-year celebration, special sessions of Industrial Ecology Day were dedicated to discussing the history of the JIE’s founding and development at Yale, as well as the significance of various papers in the special issue by their authors.

Two additional special issues are in the works for 2023, on Product Lifetimes, and on the Life Cycle Sustainability Assessment for Sustainable Development Goals. A forthcoming virtual special issue will highlight the more than 50 JIE articles that were cited in the IPCC Working Group Reports.

The year saw a number of JIE articles referenced in the media on topics as diverse as packaging waste, battery-metal supply chains, life cycle assessment harmonization, and a sustainable circular economy. A new promotional team has been assembled by Gang Liu to bring attention to newly published Journal articles of interest on an ongoing basis, through which a JIE LinkedIn page has been created and utilized to great effect.

An increasing number of articles are being published open access, with over half of all JIE articles in 2022 appearing as open access. This metric is an increasingly important factor in how Wiley determines royalties to be paid to the ISIE. At the same time, the number of transformational agreements secured by Wiley—facilitating open access publication for authors at various institutions without paying a fee—has increased to over 350 active agreements in over 30 different countries. For Society members who are at institutions without an agreement yet in place, a 20% discount on JIE open access fees still applies.

There have been a few changes to the pool of associate editors in 2022. Miguel Brandão stepped down as a Life Cycle Assessment Editor, as did Heinz Schandl as MFA/SFA Editor, as well as Niko Heeren and Guillaume Majeau-Bettez as Data Editors. Franco Donati and Rick Lupton have come on board as new Data Editors in 2022.

Efforts are ongoing to further decrease the amount of time between articles’ online publication and publication in an issue, which is now coming to fruition in 2023. This year will also see the bimonthly selection and promotion of Editors’ Pick articles, and preliminary plans are being made for webinars to be held highlighting select JIE articles. The renovation and relocation of the Journal’s auxiliary website—previously hosted by Yale, now to be hosted on the Society’s website—will take place in 2023 as well.

Gang Liu, Richard Wood, and Junming Zhu
CO-EDITORS-IN-CHIEF

▲ International Society

▼ for Industrial Ecology

ISIE Sections

Environmentally Extended Input-Output
Industrial Symbiosis and Eco-Industrial Development
Island Industrial Ecology
Life Cycle Sustainability Assessment
Socio-Economic metabolism
Students
Sustainable Circular Economy
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

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 2022, we guided EEIO members through the free webinars launched by the IIOA to share information on Input-Output Analysis research.

We also held elections for the board members, and new co-chairs were elected.

New elected Co-Chairs: **Dr. Kaihui Song** and **Dr. Peipei Tian**.

New elected Board Member: **Sébastien Dente**

The EEIO session and related events at the EcoBalance 2022 were held on-site in Japan from October 30 to November 2 in 2022.

The EEIO section also work with the Joint Interest Group on Life Cycle Assessment (LCA) of SETAC North America and the American Center for Life Cycle Assessment (ACLCA) to develop a roadmap to enable EEIO to better serve decision-making at all levels.

As of early February 2023, the section had a total of 268 members. The EEIO board was composed of the following three people:

- Co-Chairs: **Keisuke Nansai, Kuishuang Feng**
- Board member: **Dominik Wiedenhofer**

SECTION BOARD MEMBERS

Co-Chair **Keisuke Nansai**

Co-Chair **Kuishuang Feng**

Board Member **Dominik Wiedenhofer**

INDUSTRIAL SYMBIOSIS AND ECO-INDUSTRIAL DEVELOPMENT

After a relatively quiet year for the Industrial Symbiosis section in 2022, the section is gearing up for a more active 2023.

The current work plan as set out in 2021 and 2022 through member input at section meetings and the around the world meeting is a focus on networking, knowledge sharing, sharing case studies, and even co-creating/collaborating on new synergy developments. Currently there is a working group focusing on community engagement through webinars & “IS webisodes” led by Pierre-Alexandre Guillemette. Also, we have put out a call for collaborators in researching and communicating best practices & KPIs for EIPs, this is led by Dr. Liang Dong.

There are also plans for some activities around the Leiden 2023 conference, but not enough time for a classic ISRS (Industrial Symbiosis Research Symposium). Specifically, we are planning the activities during and around the conference that include a mini-Industrial Symbiosis Research Symposium, a Section dinner/social, a Section meeting, and an excursion.

We also plan to have the nominations for the section board election open before the Leiden 2023 conference and look forward to attracting additional leadership. We plan to close the polls directly after the conclusion of the conference.

We look forward to reporting on these activities and more in next year’s Annual Report.

SECTION BOARD MEMBERS

Chair **Graham Aid**

Vice Chair **Jose Alfaro**

Secretary and past Chair **Peter Lowitt**

Treasurer **Michael Martin**

ISLAND INDUSTRIAL ECOLOGY SECTION

Overview

The Islands section has had a busy and productive year with its members organizing and participating in various activities. These activities have included events, outreach programs, and opportunities to help members engage with the community and stay up-to-date on the latest developments in the field. The section has also been active in communicating with its members by providing updates on new publications, member spotlights, and upcoming events through both the section's own newsletter and the larger ISIE newsletter.

Despite the challenges posed by the global pandemic, membership in the Islands section has continued to grow significantly. In 2020, the section had 50 members, but this number has now more than doubled to 101 in 2023. Members hail from all corners of the world, with a diverse range of backgrounds and expertise (Figure 1). This growth in membership is a testament to the value that the Islands section provides to its members, and its continued dedication to advancing the understanding of sustainable island development.

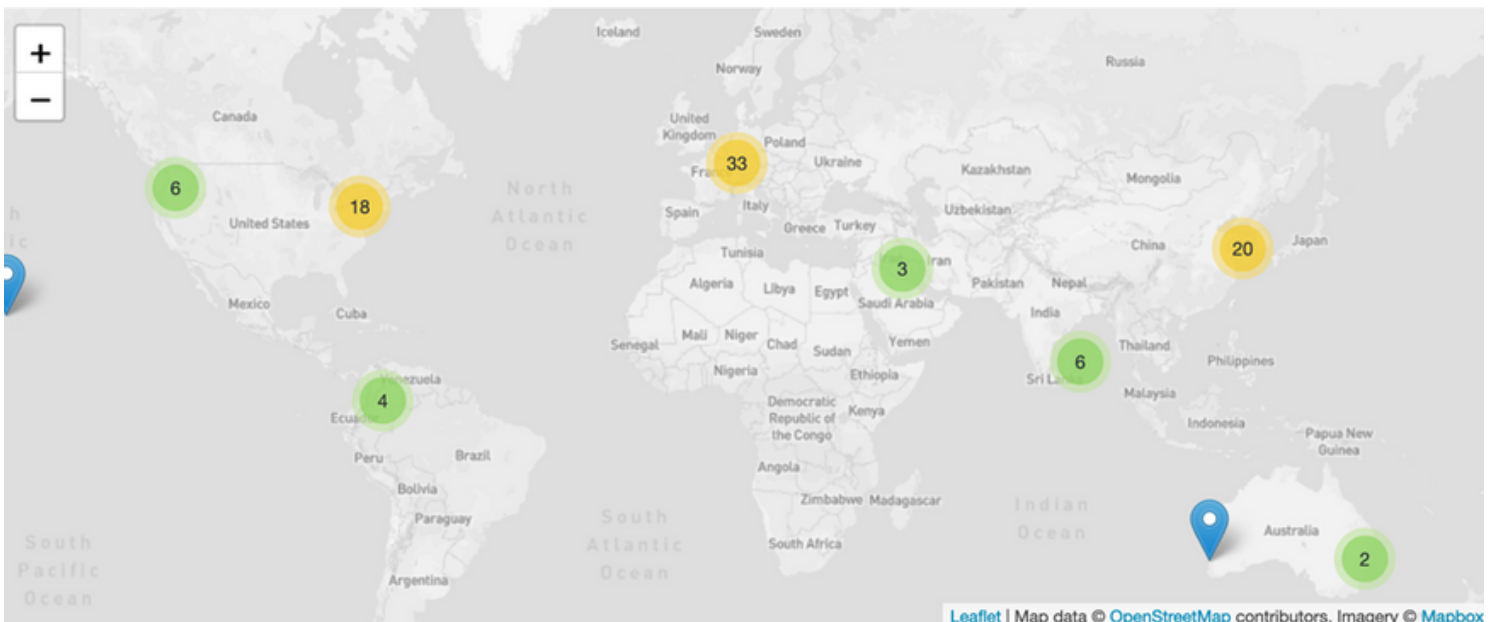


Figure 1: Map of distribution of Island – IE members

Events

The Islands-IE section has recently established a partnership with the SIF Symposia Series, which was founded by the Sustainable Island States Science, Technology, Engineering, and Mathematics ([SISSTEM](#)) group at the University of Aruba. The SIF Symposia Series, in conjunction with the Metabolism of Islands (MoI), hosts biannual symposia that bring together researchers from around the world to discuss ideas and approaches for achieving sustainability in small island states. The primary goal of these symposia is to foster interdisciplinary and interinstitutional collaboration, which is crucial for advancing sustainable development in island communities.

The [first virtual symposium](#) was held on June 9th, 2022, and the second was held on November 30th, 2022, in collaboration with the IE Day. IE Day is a global event organized by the International Society for Industrial Ecology (ISIE) to promote industrial ecology research and practice. During the [second symposium](#), Dr. Dominik Noll and Dr. Francisco Martin del Campo presented their research on Samothraki Island in Greece and the Bahamas, respectively.

The [next joint event](#) between the Islands-IE section and the SIF Symposia Series is scheduled for May 10th, 2023. This event will provide another opportunity for researchers and experts to share their ideas and collaborate on sustainability efforts in small island states. The partnership between the Islands-IE section and the SIF Symposia Series represents a significant step towards advancing sustainable development in island communities by fostering a community of researchers and experts dedicated to this cause.

Furthermore, John Telesford, the vice-chair of the section, gave a talk on 17 January 2023, that examined efforts by Grenada, an island nation in the Caribbean, on their plans towards localised energy transition to sustainability.



The poster features a green background with white text and a photograph of a coastal town on the right. The text includes the 'yaffle CONNECTS' logo, the title 'MORE COMPLEX THAN IMAGINED: TRANSITIONING TO ELECTRICAL SUSTAINABILITY IN AN ISLAND CONTEXT', a paragraph about the talk, registration information, and logos for the Harris Centre, Marine Institute, and Memorial University.

yaffle
CONNECTS

**MORE COMPLEX THAN IMAGINED:
TRANSITIONING TO
ELECTRICAL SUSTAINABILITY
IN AN ISLAND CONTEXT**

Though they are relatively small, there is nothing simple about the electricity systems of islands. Join **Dr. John Telesford** (Research Associate with the Institute of Island Studies) as he examines efforts by Grenada, a small island in the Caribbean, to embark on a complex transition to electrical sustainability.

Register online now!
www.mun.ca/harris-centre
Refreshments will be provided.
Space is limited.

Tuesday, January 17
12:00PM - 1:30PM
Signal Hill Campus (or online) Room 1003

HARRIS CENTRE
Memorial University

MI
MARINE INSTITUTE

MEMORIAL UNIVERSITY

Figure 2: Announcement of the talk on Grenada’s energy transition

Executive members meet in Lisbon

On November 14th, 2022, three executive members of the island section met in person for the first time in Lisbon, Portugal. Simron Singh (Chair), Bart van Hoof (Secretary), and Dominik Noll (Treasurer) attended the meeting, and they engaged in a series of productive discussions on several critical issues.

One of the main topics of discussion was how to expand and upscale section activities to better serve the needs of members and promote sustainable development in island communities. They also discussed the development of a proposal to advance island sustainability curriculum in island universities based on systems thinking and industrial ecology. This proposal aims to provide students with a more comprehensive and interdisciplinary understanding of sustainable development in island communities.

Overall, the meeting of the executive members in Lisbon was a significant step forward for the Islands section, allowing them to engage in productive discussions, set concrete goals and action items for the future, and strengthen their commitment to advancing sustainable development in island communities.

The executive members also explored opportunities to collaborate with more coastal and island-based campuses in Portugal, particularly the University of Evora and Coimbra University, both of which have shown an interest in islands and industrial ecology. Concrete action items were drawn up for 2023 to pursue these opportunities and further expand the reach of the Islands section in Portugal.



Figure 3: Dominik Noll (right), Simron Singh (center) and Bart van Hoof (left) in Lisbon

Contributing to ISIE news

The Islands-IE section has made significant efforts to keep its members updated on news and events related to island sustainability. One way in which they have done this is by regularly announcing new island publications that are relevant to their members. These publications cover a wide range of topics related to island sustainability, including but not limited to energy transitions, circular economy, waste management, and sustainable tourism.

In addition to publications, the Islands-IE section has also shared blog posts contributed by Dominik Noll and Francisco Martin del Campo. These blog posts provide insights into the latest research and thinking on island sustainability, as well as personal experiences and reflections from the authors. These contributions are valuable resources for members who are interested in staying informed about the latest developments in the field.

The Islands-IE section members also delivered several virtual talks, for example, organized by the University of Mauritius on 22-24 February 2022, featuring experts in the field of circular economy and island sustainability. These talks provide members with the opportunity to learn from and engage with leading thinkers and practitioners in the field, as well as to ask questions and share their own insights.

Overall, the Islands-IE section's efforts to keep its members informed about news and events related to island sustainability are crucial for building a community of practitioners, researchers, and advocates dedicated to advancing sustainable development in island communities. By providing valuable resources and opportunities for engagement, the section is helping to foster a more robust and effective network of individuals and organizations committed to this cause.

Maintaining a rich library of Island publications

The Metabolism of Islands (MoI) library is a valuable resource maintained by the Islands-IE section, focused on the field of island sustainability and resource-use more broadly. The library serves as a repository of information related to the study of island ecosystems, providing researchers and policymakers with access to important literature and data. The MoI library has experienced significant growth over the past year, with the number of items in the collection increasing from 330 in 2021 to over 600 items currently available.

The library's collection includes a diverse range of resources, including 148 case studies and 89 review articles. These resources cover a broad range of topics related to island sustainability, from environmental conservation to socio-economic issues. In addition to this, the library also contains 49 recorded articles directly related to Island-IE, highlighting the growing interest and research in this field.

The MoI library continues to expand, with over 40 new island-IE publications added to the database during the 2022-2023 period. This growth reflects the ongoing research and interest in the field of island sustainability, as well as the increasing demand for accessible and up-to-date resources for researchers and policymakers. The MoI library is a critical resource for anyone interested in the study of island ecosystems and sustainability, providing valuable insights and data that can inform decision-making and policy development in this important area.

Activities for 2023

The Islands-IE section has responded to the call from the International Society for Industrial Ecology (ISIE) by initiating the development of the first introductory lecture series on Island-IE. The aim of this initiative is to make the field of island industrial ecology more accessible to a broader audience, including those who are not industrial ecologists. Simron Singh, John Telesford, and Simran Talwar will support the lecture series, with the support of all board and section members.

The lecture series is expected to cover various topics related to island sustainability, including the challenges faced by island communities, the importance of sustainable resource use, and the role of industrial ecology in addressing these challenges. This series will provide a valuable introduction to the field of island industrial ecology, helping to build awareness and understanding of the issues and opportunities in this important area.

The introductory lecture series on Island-IE is also expected to dovetail into a webinar series, titled "Islands at Risk", which is being planned by the section board in collaboration with the Risk-KAN working group on islands. This webinar series will build on the concepts and themes covered in the introductory lecture series, providing a more in-depth exploration of the challenges facing island communities and the potential solutions offered by industrial ecology. The webinar series will bring together experts and practitioners from around the world to share their experiences and insights, making it a valuable resource for anyone interested in the study of island sustainability.

SECTION BOARD MEMBERS

Chair	Simron J. Singh
Vice-Chair	John Telesford
Secretary	Bart Van Hoof
Treasurer	Dominik Noll
Member	Catalina Spataru
Member	Simran Talwar
Member	Bob Paul

LIFE CYCLE SUSTAINABILITY ASSESSMENT SECTION

Reflecting on 2022

2022 was a transition year due to various professional and personal changes by Board members as well as the renewal of the whole Board during the second semester. The Section was mainly focused on editing and reviewing the Special Issue of the Journal of Industrial Ecology 'Life Cycle Sustainability Assessment for Sustainable Development Goals' (<https://jie.yale.edu/life-cycle-sustainability-assessment-sustainable-development-goals>). This Special Issue's main goal is to promote original research that applies or develops quantitative and/or qualitative LCSA-related methodologies to support decision-making related to multiple SDGs in different economic sectors/industries/systems, and at different temporal and geospatial scales, including the local versus global dimension.

The LCSA Section held elections during December 2022 to renew its board. The new Board is composed by:

Chairs:

- **David Font** (Eco Intelligent Growth), member from the previous Board
- **Oludunsin Arodudu** (State University of New York), member from the previous Board

Members:

- **Andrea Hicks** (University of Wisconsin-Madison)
- **Peter Berrill** (TU Berlin)
- **Paul Wolfram** (Pacific Northwest National Laboratory)

An additional fourth Section member will be soon voted by the Board among a pool of candidates.

Looking ahead

The new Board is looking forward to 2023 with renewed energy and plans to:

- Organize recurrent LCSA-related webinars with relevant stakeholders via co-sponsorship agreements.
- Increase its activity on social media platforms, including the appointment of a social media manager.

Feature early-stage researchers in the member spotlight section to help visualize emerging topics.

SECTION BOARD MEMBERS

Co-Chair **David Font**

Co-Chair **Oludunsin Arodudu**

Board member **Andrea Hicks**

Board member **Peter Berrill**

Board member **Paul Wolfram**

SOCIOECONOMIC METABOLISM SECTION

With its about 430 members (almost 100 up from last year!), 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 section conference in Vienna, September 2022

After a long absence from physical conferences due to the Corona pandemic, the 14th ISIE Socio-Economic Metabolism section conference took place in Vienna from 19-21 September 2022. With **105 oral presentations, 50 poster presentations, and 180 registered participants**, this conference, organized jointly by Vienna University of Economics and Business (WU), the University of Natural Resources and Life Sciences, Vienna (BOKU) and TU Wien (TU), **was a huge success!** The ISIE-SEM conference was co-organised by our former board member Stefan Giljum, who also was one of the co-chairs of this conference.

On behalf of the entire section, we thank the conference chairs Stefan Giljum (WU), Nina Eisenmenger (BOKU), and Johann Fellner (TU) and the local organizing team for the tremendous effort of making this special conference a high class and remarkable event!

Details on the program can still be found on the conference website <http://www.isiesem2022.org/>

The next ISIE-SEM conference will take place at Peking University, China, in 2024.

Board elections and change in board members

With the board election held in November 2022, the SEM section now follows the ISIE-wide election scheme. That means that the previous board members served for one year longer than elected, and we thank the outgoing 2019-2022 board members for their service, the many working hours invested, and their dedication and commitment to the field, the section, and our international society:



Figure 1: Group picture of the participants of the 2022 SEM section conference in Vienna

- Chair: **Hiroki Tanikawa**, Nagoya University
- Secretary: **Gang Liu**, University of Southern Denmark
- Treasurers: **Kazuyo Matsubae**, Tohoku University and **Stefan Giljum**, Vienna University of Economics and Business
- Web Editor and Communication Strategist: **Helen Ann Hamilton**, Biomar

We also welcome the new board members, congratulate them for their election, and wish them all the best for their two years of service to our community!

Chair: **Stefan Pauliuk**, University of Freiburg (re-elected, vice chair of previous board)

Anastasia Papangelou, University of Louvain-la-Neuve

Shweta Singh, Purdue University

Ichiro Daigo, University of Tokyo

Zhi Cao, University of Antwerp

Christoph Helbig, University of Bayreuth

Tomer Fishman, Leiden University (re-elected)

Peter-Paul Pichler, Potsdam Institute for Climate Impact Research (re-elected)

Perpetual SEM Online Conference

The perpetual SEM online conference has now been ongoing for over 3 years. It started during the covid19 pandemic and lockdowns as a way to overcome the lack of in-person conferences. It has evolved into a potent way for SEM section members to disseminate new research, to have discussions on up-to-date issues, and to draw in new members into the ISIE as a whole. Sessions contributed and organized by the section members continued in 2022. This was also the first year in which the online conference was held side-by-side with the in-person SEM section conference, showcasing the complementarity and benefits of holding both types of conferences.

Sessions 2022

January: Session on Stock Dynamics, facilitated by Daniel Müller, Helen Hamilton, and Gang Liu

May: Advancing the built environment toward energy and circularity transitions: Challenges and Opportunities, facilitated by Tomer Fishman

July: Scenarios for low material demand and material caps - Modelling approaches and policy relevance, facilitated by Stefan Pauliuk

Database and data exchange

As part of its mission and after an intense participative process, the ISIE-SEM section board has compiled the first Guidelines for Data Modeling and Data Integration for Material Flow Analysis and Socio-Metabolic Research.

The document is self-explaining and was designed as a standard reference for all who are in the process of publishing, documenting, or archiving MFA research, either within a software such as STAN (<https://www.stan2web.net/>) or in a custom modelling environment. We hope that these guidelines will provide reliable orientation in many different research and consulting settings. The guideline document is evolving and will be updated every couple of years to keep pace with the development of the field. We also hope that it will trigger discussions and spur engagement around some of the open items, like the development of common material classifications or of a system taxonomy for MFA datasets.

The guidelines can be found under the following permalink:

<https://doi.org/10.6094/UNIFR/217970>

Outlook

- The perpetual conference will continue also in 2023, with the first session already held in January. Session proposals can be submitted by all section members via the event section of the IS4IE homepage.
- To complement the data modelling guidelines (see above), 2023 will see another document: Good Practice Examples for Complete Traceability of Workflows and Reproducibility of Results in Industrial Ecology Research, to be released during the 2023 ISIE conference in Leiden, The Netherlands.
- The newly elected SEM board plans to review and modernize the section's bylaws, including clarity on elections and improving organizational memory.
- Activities and meetings around socioeconomic metabolism will take place at the 2023 ISIE conference in Leiden, The Netherlands.

SECTION BOARD MEMBERS

Chair **Stefan Pauliuk**

Vice-Chairs **Ichiro Daigo and Anastasia Papangelou**

Secretary **Tomer Fishman**

Treasurer **Peter-Paul Pichler**

Web Editor & Communication Strategists **Zhi Cao and Christoph Helbig**

Industry Liason **Shweta Singh**

STUDENT SECTION

Membership

The Student Chapter is represented by the Board, with 10 international students in charge of organising activities for students and young professionals, extending outreach, and supporting organisation of conference activities. The student and young professional community of ISIE at the end of January 2023 consists of 353 members from 53 countries across the globe, which means that the number of Student Chapter members has increased by over 30% over the last year.

Similar to before, the countries with the most student members registered with ISIE are China, the United States of America and the United Kingdom. We see the highest level of representation from Europe (151), Asia (102) and North America (79). There is only a minor representation from other continents: Africa (9), Oceania (9) and South America (3).

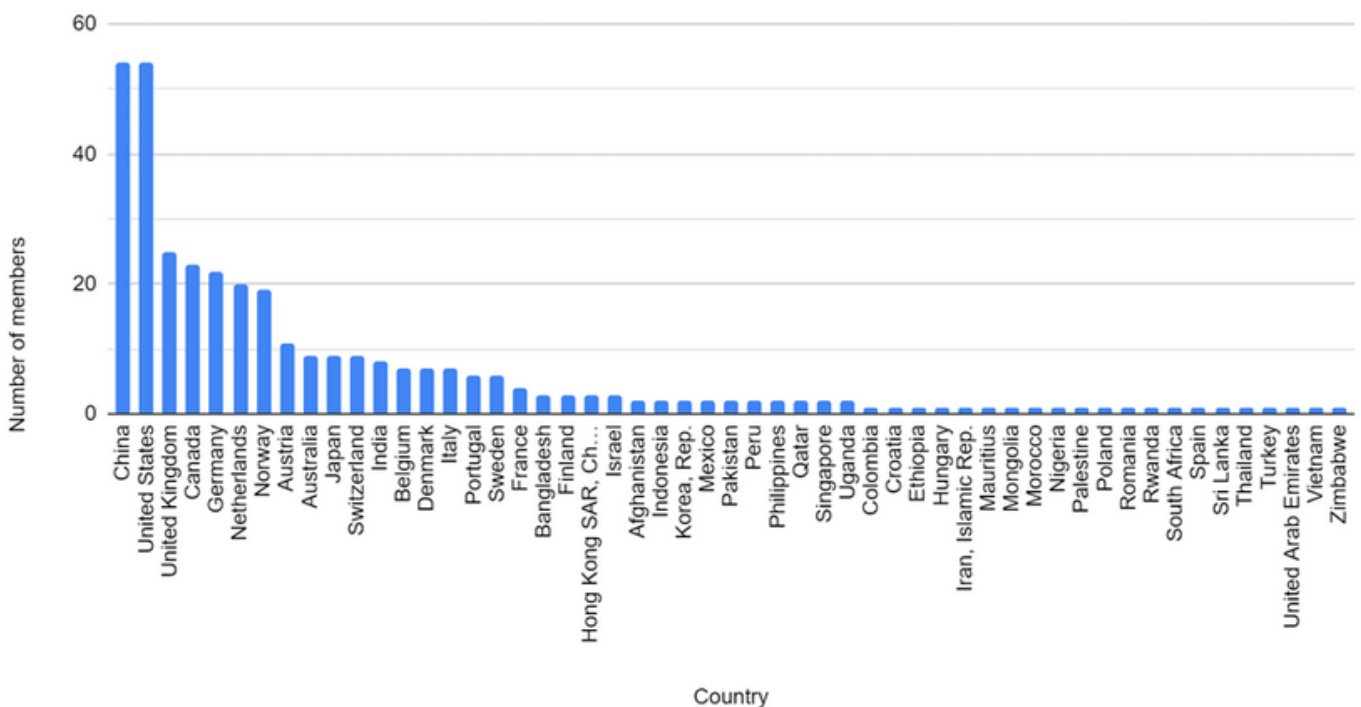


Figure 1: The members of the Student Section in January 2023, by country

Activities in 2022

The Student Chapter board members were involved in multiple activities in 2022:

- (April) Initiated a proposal at the Annual General Meeting (AGM) to establish a standard process to award student scholarships for ISIE conference participation. The proposal is governed by the ISIE Student Chapter Board in cooperation with the conference committee of the biannual conference 2023 in Leiden, as well as the ISIE Executive Committee.
- (May and October): Following previous years, two virtual networking events were organised for members of the student section. Around 30 participants have been matched by the board members based on declared research interests, and then the participants met one-on-one online to network and exchange ideas.
- (June) Hosted a Career Series Webinar in June on the topic of environmental and sustainability consulting that was attended by 17 student chapter board members. The event featured two practising consultants with IE backgrounds who provided an overview of their career paths and then answered questions from attendees about the profession. Our guest speakers were Pia Wiche who founded Wiche Sustainability and formerly consulted for UNEP and SETAC on LCA and sustainable development indicators, and Dr. Alexandra Westin who previously worked in traditional environmental consulting and now works for one of Europe's largest consulting firms, Sweco.
- (June) Supported the organisation of the 2022 Gordon Research Seminar for Industrial Ecology by helping in reviewing the abstracts and by chairing the event (Fernando Aguilar Lopez, the former president).

- (September) Hosted a student gathering at the 14th ISIE SEM conference in September 2022 in Vienna, Austria.
- (October) As every year, elections of the student board were held in fall. We welcomed 5 new motivated team members, who joined the other 5 to form a new board for the 2022-2023 term.
- Helped in boosting the visibility of the Journal of Industrial Ecology in social media (LinkedIn) in an ongoing initiative initiated by Gang Liu.

Upcoming activities in 2023

- Diversity and Inclusion: Continue the outreach strategy towards students in Africa and South America to join the ISIE and engage with the industrial ecology community.
- Career series: The ISIE SCB will organize a webinar with companies that are active in the Circular Economy and Industrial Ecology areas. A webinar with Gershman, Brickner & Bratton Inc. is scheduled for March, and topics include eco-industrial parks and solid waste consulting. Additionally, other companies have been contacted for webinars in April or June and later in the year.
- Organise an Industrial Ecology 'Wikipedia Editathon' in which members of the society can contribute to updating and generating new content about our field on Wikipedia. The event was postponed from last year to this year.
- Create opportunities for networking in two virtual networking events (in April and October).

- A large effort from the ISIE Student Chapter board will be the organisation of the Eighth Symposium on Industrial Ecology for Young Professionals (SIEYP) taking place on July 1, 2023, in Leiden, Netherlands. The last in-person SIEYP took place in 2019 in Beijing and hosted 83 participants. We expect over 100 people this year.
- In relation to the AGM proposal submitted last year, the Student Chapter Board will continue the work to establish a standard process to award student scholarships for ISIE conference participation. This work is done in collaboration with the ISIE executive team and the 2023 ISIE conference organisers.

SECTION BOARD MEMBERS

President	Kamila Krych
Vice-president	Miriam Stevens
Board Member	Thomas Maani
Board Member	Kavya Madhu
Board Member	Julius Ott
Board Member	Maximilian Koslowski
Board Member	Koichi Kanaoka
Board Member	Elisa Pastor Vallés
Board Member	Wyatt Williams
Board Member	Jakob Napiontek

SUSTAINABLE CIRCULAR ECONOMY SECTION

The Sustainable Circular Economy section was approved by the ISIE board in the fall of 2022, after substantial interest and motivation expressed by the ISIE membership in the society's online forum and at the Gordon Research Conference in June 2022, where a working group was established to found this new section. This working group now serves as founding board, which can be reached via susce@is4ie.org as well as <https://is4ie.org/sections/circulareconomy>. As of 17th of February 2023, the section already has 81 members.

The Sustainable Circular Economy (SCE) section is defined as a cross-cutting section connecting people, topics and approaches across the entire ISIE, in order to leverage synergies and increase our visibility. The central motivation for this new section is to contribute to meeting the grand sustainability challenges of our time, by developing and reflecting upon the strategic concept of the Circular Economy using the systems-based approaches, concepts and methods of Industrial Ecology. To fulfill this vision, the section wants to connect the entire toolkit and approaches of Industrial Ecology researchers and beyond, to provide inter- and transdisciplinary assessments of the potentials, synergies, and trade-offs for a sustainable circular economy.

The new section will:

- Contribute to developing the scientific grounds of a Sustainable Circular Economy, especially regarding technical and socio-economic systems
- Advance approaches and methods of IE for covering CE topics

- Provide a platform for discussing IE and CE methodologies and CE across ISIE sections
- Offer clear point of contact and collaboration possibilities for CE decision makers and IE researchers, and thus
- Explore synergies to find truly comprehensive solutions for a Sustainable Circular Economy.

The founding board members of the SCE are:

- Dominik Wiedenhofer, University of Natural Resources and Life Sciences, Vienna (co-chair)
- Magnus Fröhling, Technical University Munich, Germany (co-chair)
- Bhavik Bakshi, Ohio State University, USA
- Hannah Wang, Yale University, USA
- Sina Leipold, UFZ Leipzig, Germany
- Xin Tong, Peking University, China
- Chika Aoki-Suzuki, Institute of Global Environmental Studies, Japan

The section is governed by the founding board serving for approx. 2 years (2023-2025), after which regular elections, similar as in the other sections, will take place. This facilitates a fast start and development as well as some continuity within the formation of the section. The founding board is on purpose shaped diversely and inclusively, comprising researchers on different career levels (Ph.D. student – Full Professor), gender and location.

Mission and Vision for the SCE section

The circular economy is since long at the heart of industrial ecology. Already the earliest publications in industrial ecology refer to closing material and energy loops (cf., e.g. Frosch and Gallopoulos 1989). Bibliometric evidence is given by currently 389 publications referring to “Circular Economy” and “Industrial Ecology”. [1]The society’s journal has been playing a vital role in the development of the Circular Economy research field by publishing 144 articles with a dedicated notion to the Circular Economy[2], many of them are highly cited and groundbreaking works in this field. On the other side, ongoing CE research facilitates also a further development of Industrial Ecology. Being criticized in early times as a technocratic approach, the formation of Circular Economy introduces further considerations of social and behavioral as well as economic considerations and thus advances industrial ecology research. In addition, the growing attention the Circular Economy receives in the public, in economy and policy may help to promote Industrial Ecology as a capable and relevant toolset.

[1] Scopus research 09/06/2022, Tit-Abs-Key „Circular Economy” AND “Industrial Ecology”

[2] Scopus research 09/06/2022, Tit-Abs-Key „Circular Economy” AND Journal “Journal of Industrial Ecology”

Activities of the new SCE section

Ongoing:

1. Proposed several special sessions at the ISIE conference in Leiden 2022
2. Organize a Virtual Special Issue collection of SCE highlights published in JIE
3. Liaison with the SCE white paper working group and support their activities

Planned:

1. Develop a special issue in JIE on SCE advances
2. Organize workshop for SCE in the USA
3. Organize workshop for SCE in Germany
4. Organize a special session at the perpetual online conference of the SEM section
5. Develop a visionary outlook paper on sust-CE for JIE,
6. Collect and prepare teaching material for the ISIE homepage for others to use
7. Organize student activities
8. Develop further special sessions at other conferences

SECTION BOARD MEMBERS

Co-Chair **Dominik Wiedenhofer**

Co-Chair **Magnus Fröhling**

Board member **Bhavik Bakshi**

Board memberr **Chika AOKI-SUZUKI**

Board member **Hannah Wang**

Board member **Sina Leipold**

Board member **SXin Tong**

SUSTAINABLE URBAN SYSTEMS SECTION

The Sustainable Urban System (SUS) Section 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. As of early January 2023, the section has 360 members, up from 293 members in 2022.

Based on the results from the member survey that we conducted at the end of 2021, in 2022, we targeted to increase communication and interaction with our members and the broader ISIE community through a new webinar series, increasing our section's presence on social media, hosting an informal gathering at the GRC-IE conference, and organizing a session in the IE Day. We also published a perspective paper on *Journal of Industrial Ecology* to capture the discussion on the future direction of SUS research in the previous year's ISIE Virtual Day.

SUS Virtual Seminar

We rolled out a new ISIE-SUS virtual seminar series this year and hosted two virtual seminars. The first one was held on March 29, 2022 on the topic of "Infrastructure and Social Equity". It was moderated by Dr. Melissa Bilec (University of Pittsburgh) and included two speakers.

- Dr. Shoshanna Saxe (University of Toronto): "Cities of the future: Building more infrastructure with less"
- Dr. Joe F. Bozeman III (Georgia Institute of Technology): "A path towards systemic equity in decision making: Standardizing sociodemographic data practices"



Figure 1: SUS Virtual Seminar on Infrastructure and Social Equity

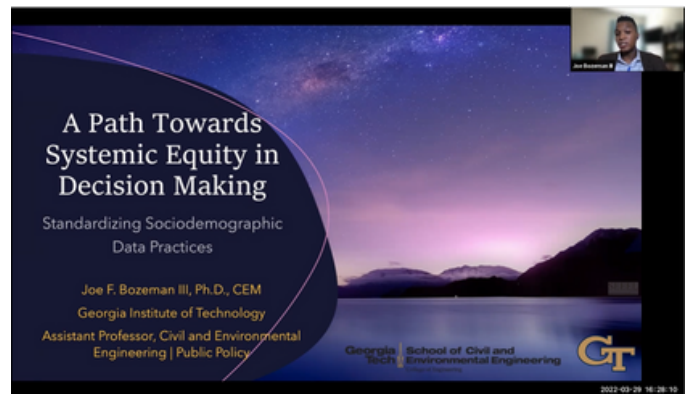


Figure 2: SUS Virtual Seminar on Infrastructure and Social Equity

The second one was held on June 3, 2022 on the topic of "Cities and Circular Economy". The seminar was moderated by Dr. Liang Dong (City University of Hong Kong) and Dr. Kangkang Tong (Shanghai Jiaotong University) and included presentations from four speakers.

- Dr. Luca Fraccascia (Sapienza University of Rome): "Designing the biomethane production chain from urban wastes at the regional level: An application to the Rome Metropolitan Area"
- Dr. Xianlai Zeng (Tsinghua University): "Win-Win: Anthropogenic circularity for metal criticality and carbon neutrality"

- Dr. Huijuan Dong (Shanghai Jiaotong University): "Waste Management mode of Shanghai and its low carbon potential from urban symbiosis"
- Prof. Fujii Minoru (NIES, Japan): "Promotion of carbon neutral plastic circular economy through collaboration between the waste sector and the material industry"

Social media

Responding to the need voiced in the member survey, we have also been working on improving our online presence.

SUS now has a LinkedIn group (<https://www.linkedin.com/groups/12650565/>). Please consider joining us if you haven't!

GRC SUS Fireside Chat

At the Industrial Ecology Gordon Research Conference, we had an informal gathering of SUS members. The discussion centered around how to increase impact of research and how SUS may help connect researchers with practitioners.

International Industrial Ecology Day 2022

We organized a session on the topic of "At the Intersection of Sustainable Urban Systems and Circular Economy" in this year's IE Day on November 30, 2022. The session invited students or post-doctoral fellows as speakers to highlight emerging professionals and their research.



Figure 3: Informal gathering of SUS members at Gordon Research Conference

- Tamar Meshulam (Phd Student, Ben-Gurion University of the Negev): "The Environmental Impacts of the Sharing Economy: A Systematic Review and Synthesis of Empirical Evidence"
- Daniel Grosseger (Research Associate (Future Roads Fellow), Department of Engineering, University of Cambridge): "Challenges in Road Construction to Reach Net-Zero and Enhance Circular Economy"
- Nadja Yang (PhD candidate in Systems Engineering (German Rhodes Scholar), Department of Engineering Science, University of Oxford), "Urban Bioeconomy: Uncovering its Components, Impacts and the Urban Bio-Symbiosis"
- Aline G. Banboukian (Graduate Research and Teaching Assistant, PhD Student in Public Policy, Georgia Institute of Technology): "Wastewater Reuse for Urban Agriculture"

Perspective paper

In last year's ISIE Virtual Day, SUS organized a session to (re)imagine the research goals and vision for cities across a rapidly changing world. After the ISIE Virtual day, board member, Joe Bozeman III, led the preparing of a journal article to capture the discussions from this event as a beacon for our SUS section moving forward. The article has been published.

- Bozeman III, J.F., Chopra, S.S., James, P., Muhammad, S., Cai, H., Tong, K., Carrasquillo, M., Rickenbacker, H., Nock, D., Ashton, W., Heidrich, O., Derrible, S., Bilec, M. (2022). Three research priorities for just and sustainable urban systems: Now is the time to refocus. *Journal of Industrial Ecology*, 1-13. <https://doi.org/10.1111/jiec.13360>

Upcoming events and activities in 2023

- We are working on recording three 10-minute IE introductory videos on the topics of "Social equity and justice", "Urban infrastructure dependencies", and "Digital twins of cities".
- We plan to continue organizing webinar series and also host panel discussion that engages practitioners and policy makers.
- We would like to increase our social media presence (aiming for one post one month on LinkedIn).
- We are also planning to organize SUS activities at the ISIE Leiden conference that may include a special session, a networking trip, SUS awards, and potentially a special issue.

SECTION BOARD MEMBERS

Co-Chair **Melissa Bilec**

Co-Chair **Hua Cai**

Treasurer and COP26 Activities Coordinator **Oliver Heidrich**

Secretary and creative director **Paul Currie**

Web Editor and Communication Strategist **Liang Dong**

Professional Liaison Coordinator **Joe Bozeman III**

Research coordinator **Shauhrat Chopra**

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