

A letter from the Editor's desk

Hello and welcome to the third edition of the Industrial Ecology MSc newsletter DiscoverIE!

Almost a year has passed since the last publication. But much like the tulips at Keukenhof, spring has sprung new life into this newsletter. A little update on university life for IE master students since then; Eefje Cuppen has taken over as a new director of education for Industrial Ecology and the ninth generation of the SHIFT board was appointed in March and its members have enthusiastically settled into their positions. First year students are busy putting finishing touches on their Design for Sustainable Technology assignments and working hard on their Science Communication projects, while second year students collaborate on their Interdisciplinary Group Projects or are busy writing masterpieces in time for their thesis-deadlines. Preparations are being made to welcome a new batch of enthusiastic students in September, while a newly installed Renewal Committee has taken up the task of reshaping the curriculum to accommodate the growth of the master program (which you can read about in more detail below!).

There is a lot going on in the IE-universe, and this newsletter is a collection of pieces brought together to give you a glimpse into the program and community. I hope that it makes you laugh, think and that it provides insight into the life of Industrial Ecologists in the making.

A. Singhvi



Events

Lunch lecture: Redesigning waste

by: J. van der Zaag

On 31 April, Shift held a lunch lecture about redesigning waste. Interesting speaker? Check! A table full of delicious sandwiches? Check! A classroom full of people? Check!

We invited the recently graduated architect Nico Schouten to present his final master project. His project aimed to challenge the perception of waste by using discarded PET plastic as a building material for residential homes. His design was located in a small plot in Buiksloterham, just a block away from the plot that is the focus for the design project for the Urban Environments course. Nico wrote a definition for what circularity in the built environment meant for him as a blueprint for his design. His focus was on materials and technology, placed in a context of social, economic and environmental considerations.

The lecture was followed by two questions; 'Is circular construction even possible?' and 'Does a clear-cut definition of circularity help or hurt sustainable visions?' Super easy questions for a bunch of IE students, right? Wrong! There were arguments flying from all sides: 'A building is not circular until we know what is done at the end of life phase' 'Yes, but who has the knowledge and authority to test what is circular?' 'Well there are many organizations who can certify this, but circularity is not even a worthwhile aim: trade-offs should be made based on each individual case' 'Well defining the threshold for circularity too specifically distracts people from the real aim: energy neutrality' 'That's not the real aim! The real aim is...' And so the discussion went on, and we may not have found THE answer but the discussion followed the audience out the door - and isn't that the real goal?

An invitation to IE's first Gala!

by: B. Lutz

Tired of not having a single event to dress up as fancy as you've secretly always wanted? Can't find the right crowd for wearing that killer dress or slick bow-tie? Ever wonder what happened to those

final-year students from when you started studying IE? We hear you, and we feel you. So despair no more, we have just the event you're looking for!

The Event Committee is excited to inform you, dear readers, that the first ever Shift Industrial Ecology Gala is coming up! You - and of course your +1 - are hereby cordially invited to enjoy a beautiful spring evening at Grand Café De Burcht in the heart of Leiden! Drinks and (vegetarian) finger food will flow freely all night, and the good times with them. I hear you think: 'Gala? That upper class stuff is probably going to be way too expensive!'. Well, fear not! Tickets will come at the tiny price of 22 euros if you catch the early bird specials. To hear more about the program, stay up-to-date on social media. We look forward to seeing you on 15 June for a classy evening in Leiden!

Write it in your calendar!

Upcoming events by SHIFT



Workshop: LaTeX

12:30 - 13:45 on May 31, Location TBA

Given by Shift's education coordinator Jochem and Feb starter Igor, this workshop will take you through the basics of LaTeX - just in time for all those papers you'll be writing before the summer!

Lecture: Are you thesis ready?

12:30 - 13:45 on June 14, Location TBA

Tom and Arjang will be imparting their (hard won?) wisdom about thesis writing. Be there to be thesis-prepared.

IE Gala 2018

20:00 - 01:00 on June 15, Grand Café De Burcht

There's no good reason not to be there!

End of the year celebration

17:00 - 20:00 on June 28, Leiden

You're free, we are free, it's time to celebrate the start of summer! Details to come shortly.

Education

Renewal Committee

by: K. Boomgaard

Since its start in 2005, the MSc Industrial Ecology has grown considerably. Although the programme can be considered relatively young, it is now entering a new phase in which it needs to be able to accommodate further growth while guaranteeing and improving its quality at the same time. To help accommodate this next step in the development of our programme, a renewal committee was installed in January. The committee's role is to give advice on the following questions:

- 1) How can the programme's interdisciplinary nature be further supported and strengthened?
- 2) How can the programme remain challenging for each individual student, while remaining accessible for students with diverse backgrounds?
- 3) How can the programme make the core narrative of a complex field such as Industrial Ecology more explicit? As a field that involves a variety of disciplines, concepts, methods and theories, it is important that students are able to follow the common thread that ties it all together.

The committee has the following members:

- Kiki Boomgaard (programme coordinator and study advisor)
- Stefano Cucurachi (member EduCom, coordinator SYSEA)
- Eefje Cuppen (programme director, coordinator CLOSC)
- Lennart van Gameren (student member Educom)
- Eveline Kantor (student member)
- Tom Millross (student member)
- Rene Kleijn (member Board of Admissions, coordinator IPG)
- Andrea Ramirez Ramirez (professor Low Carbon Systems and Technologies TBM, TU Delft)
- Gijsbert Korevaar (chair EduCom, coordinator DOSTS)

Our aim is to have a proposal ready before mid-July, including renewed exit qualifications and a draft new curriculum. The implementation of the renewed curriculum is set for September 2019 (starting with the first year) and will therefore most

likely not have an effect on your (current students!) studies. Although we have three very active student members in our group, we would also like other students to be able to share their ideas and thoughts. We will therefore organise a meeting in June (exact date TBA) to share our first ideas. In the meantime, you can always contact me (Kiki), Eefje or one of the student members.

Elective review: Environmental Economics

by: L. van Gameren

There are many ways you can look at sustainability, but one famous model is the triple bottom line: People, Planet, Profit. The first two are addressed extensively in the regular IE curriculum, but profit is not touched upon very often, and yet this is an integral part of sustainability. Therefore, get ready to learn about the Environmental Economics (EE) Capita Selecta!

The class is taught by Assistant Professor David Zetland and features cool stuff like internalizing negative externalities, quantifying the value of nature (ecosystem services), studying microeconomics (what do tax and subsidy really mean in the free market?) and a professor that is continuously stimulating and facilitating group discussions about the literature.

To give you an example: I always wondered why the European Cap & Trade System is failing and why it was thought to be a good idea in the first place. Turns out that it is based on a system used to cut down industrial sulfur emissions in the USA in the 90s, which was an enormous success! It resulted in a net benefit of around 58 – 114 billion dollars in terms of avoided mortality, morbidity and positive ecosystem effects, while it cost the government only about 0.5 – 2.0 billion dollars. Talk about effective policy!

So be sure to check out this elective if you are in any way interested in learning about the oft-overlooked economic dimension of sustainability. However, it

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must be said that while the final project for this class is a Cost-Benefit Analysis, the class does not devote much time to the intricacies of this tool. Also beware that classes can jump between subjects very fast, which is often interesting, but sometimes leaves you feeling that you are missing some fundamental background knowledge to fully grasp everything (and there's no book or recorded lectures to re-read or watch, when yet another 1.5 hour rollercoaster called 'class' is already over again).

The most important takeaway of this Capita Selecta comes from understanding the difference between excludable and non-excludable and rival and nonrival goods and services. This concept, summarized in the 2x2 below is fundamental to understanding how politics, economics and the environment intersect. If you want to see this matrix on the board countless times to explain yet another sustainability policy, be sure to enroll for EE next spring.

	Excludable good	Non-excludable good
Rival good	Private good	Common pool resource
Non-rival good	Club good	Public good

goods regulated by the market

goods regulated by policy

Elective review: Advanced Textbook Exam by: T. M.

You know how some academics name their courses to sound more interesting than they really are? Professor Jan Boersema is not one of those people.

This unique 6EC course, administered as a Capita Selecta, is like nothing else on offer. It aims to "provide and confront the student with the most

influential environmental theories in their authentic wording." Through reading these fascinating historical publications, you'll gain a broad overview of the ongoing journey toward an understanding of the interaction of humans with our environment.

You will read one chunky textbook, plus two extra academic articles at the Professor's discretion. You then select and submit three additional publications on "major environmental issues like climate change, overexploitation of natural resources, energy and biodiversity", which the professor will consider, then read or reject.

So far so good. But how about the evaluation for your credits? There are no assignments, group work, written exams or multiple choice questions here. The course involves but a single extended session: the eponymous "advanced textbook exam". Upon agreement, you shall be summoned to the examination arena armed with your wits and a cup of tea. Surrounded by beautiful books, piles of paper and relics from the Professor's travels, you will encounter the first great decision of the assessment: which armchair to sit in?

Assuming a correct choice, Dr. Boersema will launch into an onslaught of probing questions, testing your awareness and understanding of the source material. He seeks one golden piece of knowledge: do you know what [on earth] you're talking about? This "learned academic conversation on scientific literature" will challenge you to articulate and defend your perspectives against all manner of creative counter arguments. To prevail, you must pay close attention to the reading and meditate deeply on the meaning.

So why the peculiar course-naming and lack of advertising? Unlike in lecture-based course formats, the teaching effort required scales linearly with the number of students. My guess is that if too many people apply; many will be rejected. But if you study hard and succeed, you'll be informed of your grade before leaving the room. And the adventure is over almost as quickly as it began.

Climate change in Hollywood

by: A. Tajbakhsh

Nothing permeates the fabric of global society these days like a Hollywood blockbuster. Based in the United States, the film industry brings in almost 70% of their revenue from international markets. While the primary purpose of movies is to entertain, it is undeniable that they often reflect the spirit of mainstream society and in some instances reinforce it. So what do these influential movies say about climate change? The one movie that immediately comes to mind is the successful blockbuster *The Day After Tomorrow*. Riddled with rain and frost, the movie depicts the tragic impacts of extreme climate in true Hollywood fashion complete with sky-scraper high waves and bowling ball sized hail. It is undeniable that the movie has had impact. Research from Yale University concluded that “Across the board, the movie appears to have had a strong influence on watchers’ risk perceptions of global warming,” (Leiserowitz, 2004). But what of more recent movies?

It seems as though Hollywood has hit a bit of a dry spell recently (get it? dry spell... climate change). According to Fisher Stevens, an Oscar winning filmmaker and actor, climate change just isn’t sexy. Movies typically need a clear bilateral conflict: the hero versus the villain. But we occupy both those roles when it comes to climate change. And this need for a villain presents a bit of a problem. In the movie *Kingsman: The Secret Service*, the villain kills people in order to save the planet from the threat of climate change. At the end of the movie, the villain is defeated (surprise!) but the climate change threat is not addressed. Without giving away any spoilers, the motivations of Thanos, the main villain of *Avengers: Infinity War* is similar albeit on a more galactic scale. I doubt the movie will show the scientists of Wakanda developing a cost effective carbon sequestration device or the Avengers taking on an ad campaign to change people’s recycling habits. Another way Hollywood deals with climate change is comedy. In the movie *Downsizing*, a technology is developed to shrink people so that they inherently consume less.

What does it say about global perceptions of climate change solutions when its most pervasive influencer presents it as a background conflict with often immoral or comedic proposed solutions? Sure, they’re out of the box, which are the types of solutions we need, but do extreme fictional solutions desensitize us towards trying to find a real solution? Asking for a friend.

International Cleantech Challenge

by: S. S. Shanmugasundaram



The Cleantech Challenge or Sustainable Business Game is an approved elective for Industrial Ecology. The course is given in partnership between TU Delft and Rotterdam School of Management, and is organized by the Centre of Innovation Rotterdam and Yes!Delft. During the course, my team and I had two months’ time to come up with a business model which involves a Cleantech or a sustainable innovation. Additionally, we had lectures every week in which we learned about sustainable innovation and how to turn it into a business model.

Our team, called Ecoplanks, worked on a project that proposed a wood-like fibreboard made of coconut husk as an alternative to Medium Density Fibreboard (MDF). Its value is that can be used to make furniture, cups and bowls. Coconut hulls, generally considered waste materials, are either burned or landfilled. Both of these practises are bad for the environment, and our aim was to come up with a solution that could turn the waste into a value product to prevent environmental pollution and

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leaching. Our innovation does not use any glue or other chemicals generally used in the production of MDF or other fibre boards. It provides opportunities to farming communities for an additional income.

Our project won the Dutch CleanTech Challenge 2018, and so we were invited to the International CleanTech Challenge in London, where we finished in 2nd place!

IE Spotlight: Stanislava Borisová by: A. Singhvi

Every edition of the newsletter puts the spotlight on an IE'er doing something interesting. This month, we talk to Stani.



Hi Stani! So I hear you're studying abroad this semester - what are you up to?

Hellooo!! I'm currently in Tokyo, at Keio University, doing some of my electives, learning Japanese, eating local food and travelling a lot!

Sounds amazing! How come you decided to go abroad?

Already during my bachelor, I did a study abroad and it was such an amazing experience that I decided to do it again during my master, no matter what. Before starting IE, I found out about the MIND program and I thought that it meant we could all study at one of the partner universities involved in this program. One of them was a university in Japan and I got really excited about studying IE in Japan, especially with their vision of how technology and nature can coexist in harmony. Then I found out that a regular IE student cannot do an exchange through the MIND program, but I was already set on going, so I looked for other ways of studying in Japan.

What kind of courses are you taking, and how are they?

They're pretty good, I'd say, naturally some are more interesting than the others. For instance, I'm taking a course in Energy Economics, Environment and Policy and it's really amazing to be taught by someone who has an immense amount of knowledge on the topic, is really passionate about it and consults governments of Asia Pacific on the issues of energy sources and renewable energy financing.

I also took a course in Japanese Supply Chain Management, which hasn't been exactly what I expected. The course was pretty general but I got to learn a lot about how the Tohoku earthquake and tsunami (you'll probably remember it as the Fukushima disaster) impacted the people and companies here. It was quite shocking and also a bit scary, as since I have already experienced two earthquakes since I got here at the end of March (very mild ones in comparison, of course).

Wow - I'm glad you're okay!

Has your IE background been useful to you abroad?

I think that my IE background let me see the big contrasts here. For instance, the first day I moved into my dorm, I thought it was amazing how much they separate their waste, with special bins for cans, mixed plastics and then a bin for plastic bottles, another one for caps from these bottles and then one for plastic labels. But then you realize that there is nowhere to put your organic waste and

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after seeing that some locations only have bins for “incinerable” and “non-incinerable” waste, I wonder if all the waste just gets incinerated and then landfilled.

Also, the Japanese love their plastic. It’s painful to see a single tomato on a polystyrene tray, wrapped in plastic foil, but that’s the reality here. You buy a package of cookies and then open it at home, only to find out that each single cookie is individually packed. From what I read, there have been some governmental efforts to cut this down, but in my opinion, they still have a long way to go. Buying a loaf of bread and some pastries usually means that bread gets its own bag, each pastry does as well and then they all end up in another, bigger bag. Shop assistants regularly get shocked when I say I don’t need a bag (*‘fukuro irimasen’*) and just want to carry my groceries in my hands.

Always good to know the important phrases in a new country! Any tips for others that want to do a semester abroad?

The whole process is really complicated, takes a lot of time and you keep on running back and forth from one person to another. That alone discourages a lot of people. But I think of it as a once in a lifetime opportunity, while I’m still a carefree student with a lot of options for funding that won’t be as easily available when I graduate.

Arranging all the practicalities, I got a lot of help from Els Kroon (former IE study advisor), Gloria Schildwacht (from Leiden International Office), Gaye Eksen (International Programmes Officer) and last but not least, Kiki Boomgaard (current IE Program Coordinator). I got my first information from TU Delft and Leiden University websites, but making discussing my options in person was absolutely priceless.

Also, my tip for anyone arranging this: when you think you’re finally done, make sure to double check with someone else, because you’re most probably not.

Thanks Stani - enjoy the rest of your stay there and see you soon!

A poem by: A generous benefactor

Inspired by Stani’s journey to Japan:

*Why not a haiku
To draw the third newsletter
To a striking close?*

This newsletter is made possible by the generous submissions of IE’ers, for their articles and their editorial eyes. A massive thank you to everyone that has contributed. However, it features only a small slice of the talented pie that is IE. There is potential for so much more variation in its writers and perspectives, and it does not currently fulfill its potential of reflecting the broad range of strengths that come from a master program as diverse as ours. If you are interested in being involved, please reach out. I look forward to receiving your articles, recommendations, love letters, strongly worded reviews, poetry, event invitations, recipes and thoughts for the next edition. - A. S.