



SWEDISH
LIFE CYCLE
CENTER

2018

SWEDISH LIFE CYCLE CENTER ANNUAL REPORT



Swedish Life Cycle Center Annual Report 2018

No. 2019:2

Welcome to the Annual Report for 2018, the final year of stage 8. This has been an exciting year! The organizational move from Gothenburg Centre for Sustainable Development (GMV) to Technology Management and Economics (TME) at Chalmers has raised new opportunities, where closer collaboration with Chalmers has been enabled.

For academic partners the newly started working group *Academy Group* gathered participants for a symposium about teaching at universities in February, which led to the initiative of a Swedish PhD course in LCA. In fall 2018 the course *Advances in life cycle assessment* was held for the first time, supported by the *Academy Group*.



Carl Karheiding, Acting Director of Swedish Life Cycle Center.
Photo by Ulrika Ernström.


2018 was also the second year of the project *Swedish platform for the life cycle perspective* funded by the Swedish Energy Agency. The project has now gained momentum, including several networking activities, increased knowledge building, the launch of a new website and more external communication, which enables greater impact on the society in the future.

These are just two examples on Swedish Life Cycle Center's capability to act as a focal point for the life cycle perspective in Sweden, and deliver results that affect the life cycle related field for all of us.

The Board and the Technical secretariat would like to thank all partners and participants who were actively involved in Swedish Life Cycle Center during 2018.

We are looking forward to continued cooperation in 2019!

*Best Regards /Carl Karheiding
Acting Director, Swedish Life Cycle Center*



“We have done LCA since the 80’ies, but PEF/OEF is unique & many large companies are involved”.

- Elin Eriksson, IVL Swedish Environmental Research Institute

Extended impact on the global development

Influenced new ISO standard

We know what our goods and services cost, but what does the environment pay? The question has engaged several companies and researchers within Swedish Life Cycle Center. Already 30 years ago, the Environmental Priority Strategies (EPS) method was developed by center partners to translate environmental damages into money. In collaboration with Volvo AB, Essity, Nouryon (formerly Akzo Nobel) and IVL Swedish Environmental Institute, Bengt Steen, Chalmers, has led the development of a new ISO standard for monetary valuation (ISO 14008). Thanks to new knowledge from the research project *Development of methodology to communicate environmental damage cost data* the standard was approaching launch in early 2019. The initiative to the standard came from Swedish Life Cycle Center and was formulated and sent in through SIS Swedish Standards Institute.

“The center has played an important role in the development of LCA in Sweden and globally – especially in the work with standardization”

- Dag Lundén, Environmental Manager Telia Company Technology Sweden & reviewer of the center in 2018.



The working group *Get the prices right*, which initiated the ISO standard and the research project mentioned above, has created new research applications during 2018. Monetary valuation of environmental impact has gained increased importance and there is more work to be done within the center.

Environmental Footprint

A global perspective is important. Standards and policies need to be developed in international collaboration. The expert group *Environmental Footprint* has over the years followed the development of the EU Product Environmental Footprint (PEF) and



Claude Chanson (General Manager, RECHARGE) at the PEF/OEF seminar in May 2018. Photo by Helena Larsson.

Organization Environmental Footprint (OEF) process and provides expert support and advice through the Swedish EU representatives. In May 2018 a seminar was organized to provide Swedish organizations with latest news from the EU final conference of the pilot phase as well as updates on the transition phase. In the transition phase applications of OEF and PEF on policies will be discussed.

Increased impact of life cycle information

Within the area of life cycle management the center project *Adapted decision support for increased energy efficiency in value chains* aimed to facilitate for various functions of a company to achieve better environmental performance through impacting decisions and actions throughout the company. The project was a result from an earlier project within the center and has been used as a platform for sustainability managers to meet and discuss similar issues among different cross companies.

The project was highlighted by partners for providing valuable input in their internal work and it generated a guide on how to introduce the life cycle perspective in environmental management systems – something

which is already being used by one of the partners in workshops on ISO 14001:2015 Environmental management systems.

Close academic collaboration

Close collaboration between Swedish researchers is a key to securing knowledge and capacity in Sweden. In 2017 the center initiated the *Academy group* to increase the collaboration between academic researchers and better address questions of interest to the academic partners. In 2018 the group organized a symposium to gather academia to discuss methods, materials and experience from teaching LCA. Further on, the group was the focal point of the initiative for a Swedish PhD course.

“ On a scientific level, the center brings together leading experts from different research groups in Sweden – one of the strategic benefits of the center.”

– Matthias Finkbeiner, Professor at Technische Universität Berlin & reviewer of the center in 2018.

Furthermore, the center has sporadically supported master thesis initiatives with connection between industry and academia.

Life cycle thinking for a wider audience

The mission to spread life cycle thinking and build knowledge in the life cycle field was translated into several events during 2018. An introduction to the EPS tool was given through a webinar in May. To deepen the understanding of EPS, a case study from the research project on monetary valuation was presented in a webinar during fall.

The PhD course *Advances in life cycle assessment* was given for the first time in 2018 as a fruit from close collaboration between SLU and the *Academy Group* of the center. Course leaders were Tomas Ekvall (IVL / Chalmers) and Torun Hammar (SLU) and the course involved lecturers from five other universities and research institutes. Unsolved problems were being discussed between students and teachers within the framework of the course. The course also created an informal network of PhD students in Sweden.

Government agencies in close collaboration

The *Dialogue group for government agencies* contin-

ued to meet and exchange knowledge in the life cycle field during 2018, and the Consumer Agency joined the group in the beginning of the year. The group also arranged the seminar “*Sustainable procurement – the role of life cycle perspective*”, which was held in May 2018. It was a unique opportunity to gather two sides from the process – purchasers and suppliers. The main topics were how purchasers can set requirements on suppliers with a life cycle perspective in mind and how suppliers can prepare for sustainability requirements from purchasers in public sector. The seminar gathered around 40 people.



Nicklas Magnusson (Development manager Green & Sustainability, Skanska) at the seminar Sustainable procurement – the role of a life cycle perspective, in May 2018.

International and national collaborations

The center holds a strategic partnership with *Forum for Sustainability through Life Cycle Innovation* (FSLCI). At the *Life Cycle Innovation Conference 2018*, arranged by FSLCI in August, the center contributed with three presentations and sessions.

The center has been represented at several other national and international conferences and workshops, e.g. *National workshop on sustainable lifestyles* and *SETAC Europe 28th Annual Meeting*.

An open platform for LCA & vehicles

LCA for vehicles started as a working group in the beginning of 2017 together with the Swedish Energy Agency and the Swedish Transport Administration. The group is run by the center through the project *Swedish platform for the life cycle perspective* and was, during 2018, extended to include both partners and external actors. In November the group gathered to discuss how to tackle future requirements on vehicles. Partners of Swedish Life Cycle Center as well as external actors were participating with the

mission to look at present and future scenarios and to be prepared for future EU regulations.

Increased importance of life cycle data

The expert group *Data Strategy* has allowed the center to follow and influence UN Environment's work towards *Global Life Cycle Access Data network* (GLAD) as well as to investigate requirements needed for a Swedish national database to be connected to GLAD in the future. GLAD was launched in 2018 and next step is to follow the development and investigate the possibilities for a national reference database in Sweden.

Circular Economy

Circular economy has been a focus area during 2018, starting with the network conference "*The role of life cycle thinking in a circular economy*". Different perspectives were highlighted during the year, in various constellations. At the conference, the Minister Per Bolund gave his view on circularity and life cycle perspective and mentioned the Government's strategy for sustainable consumption. Researchers from the Mistra REES program at Linköping University gave



Per Bolund (Minister for Financial Markets and Consumer Affairs & Deputy Minister for Finance), speaker at the Network Conference in February 2018.

presentations about customer behaviour and re-manufacturing at the conference and in a webinar in spring. In the workshops at the Network Conference different business models, policy instruments, design for extended use etc. were discussed. One of the workshops resulted in the research project *Modeling of Recycling*, which started in November 2018.

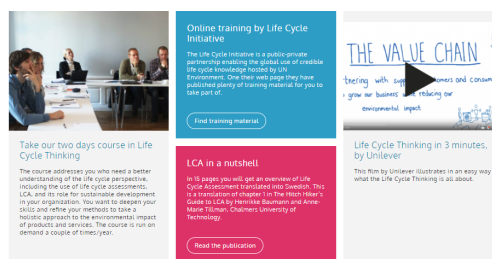
Communication for a greater reach

Thanks to the project *Swedish platform for the life*

cycle perspective the center had resources for one person dedicated to the center's communication. Several moves were made during the year: a new graphic profile, homepage and web forum improved the possibilities to collaborate and present the center in a comprehensive way. Channels like twitter, PR and public newsletters were also developed, in order to reach out to an extended life cycle network with results and good examples.

Learn more about life cycle topics

There are plenty of Swedish and international actors that contribute to the knowledge building within the life cycle field. Below are some advice:



The new website was launched in February 2018.

“Sweden will become one of the first fossil-free welfare states and Circular Economy as well as Life Cycle Thinking are important to reach that goal.”

Per Bolund, Minister for Financial Markets and Consumer Affairs & Deputy Minister for Finance, at the Conference in February

Center of excellence

In 2018, the center was externally reviewed according to policy and guidelines for centers at Chalmers. The evaluation focused on collaboration, utilization and research during stage 8 and its operational plan.

The external reviewers expressed the importance of Swedish Life Cycle Center within Swedish organizations and its contribution to the international development of the life cycle field. They also discussed the great impact potential that the center has to penetrate in society and affect user behavior.

Finally, the external reviewers concluded that the goals for stage 8 were achieved and recommended a continuation of the center.

Research projects

Adapted decision support for increased energy efficiency in value chains

Project manager: Emma Rex, RISE Research Institutes of Sweden.

Time period: 2016-08-15 - 2018-08-31

Funded by: Swedish Energy Agency.

Participating organizations: RISE Research Institutes of Sweden, Nouryon, IVL Swedish Environmental Research Institute, Swedish Environmental Protection Agency, Vattenfall, Volvo Car Group.

Outcomes from the project:

- 2017: Workshop with preliminary results.
- 2017: Presentation at LCM2017 (8th International Conference on Life Cycle Management).
- 2018: Presentation at Life Cycle Innovation Conference.
- 2018: Guide with the title: "Att införa ett livscykelerspektiv i miljöledningssystem: Inspiration, övningar och tips på tillvägagångssätt".
- 2018: Project summary report.
- 2018: Webinar - Towards increased impact of life cycle information.
- 2018: Press release.

Development of methodology to communicate environmental damage cost data

Project manager: Bengt Steen, Chalmers University of Technology.

Time period: 2016-10-01 - 2018-06-30

Funded by: Swedish Energy Agency.

Participating organizations: Chalmers University of Technology, Nouryon, Essity Hygiene and Health, Volvo Group, IVL Swedish Environmental Research Institute.

Outcomes from the project:

- 2015-2018: Participation in and development of the new standard ISO 14008.
- 2016: Article in Journal of Cleaner Production vol. 127 (2016), pp 37-48. Choosing a monetary value of greenhouse gases in assessment tools – A comprehensive review.
- 2017: Three case studies.
- 2018: A survey to study how metadata should be communicated and presented.
- 2018: Final report from the project.
- 2018: Poster at SETAC Annual meeting in Rome.
- 2017: Poster at LCM 2017 (8th International Conference on Life Cycle Management).
- 2018: Webinar Using EPS in product development.
- 2018: Press release.

Modeling of recycling

Project managers: Thomas Ekvall, Chalmers University of Technology / IVL Swedish Environmental Research Institute & Jenny Lagergren, Technical Secretariat.

Time period: 2018-11-15 - 2020-05-31

Funded by: RE:Source.

Working groups

Academy group

Biodiversity & land use

Dialogue Group for government agencies

Get the prices right

LCA data & methodology

LCA & vehicles

Social LCA

Expert groups

Data strategy

Environmental footprint

Board 2018

Lars Mårtensson, Chairman

Lars-Gunnar Lindfors, Secretary (adj)

Anna Widerberg, Volvo Cars

Carl Karheiding, Acting Director Swedish Life Cycle Center (adj)

Elin Eriksson, IVL Swedish Environmental Research Institute

Eva Ahlner, Swedish Environmental Protection Agency
Emma Ringström, Nouryon

Holger Wallbaum, Chalmers University of Technology
Karin Eriksson, Volvo Group

Katarina Lorentzon, RISE Research Institutes of Sweden
Larissa Strömberg, NCC Construction

Lena Landström, Vattenfall

Anna Hedlund Åström, KTH Royal Institute of Technology

Mats W. Lundberg, Sandvik Materials Technology
Stefano Marzola, SKF

Susan Iliefski Janols, Essity Hygiene and Health
Susanna Widstrand, Swedish Energy Agency (adj)

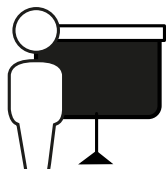
Torun Hammar, Post doc Energy and technology, SLU
Swedish University of Agricultural Sciences

The network in numbers

Applied life cycle thinking has always remained in focus and this has gathered experts from the partners, building a critical mass of researchers and practitioners who use the center as their common arena upon which further activities and perspectives are developed over time. Below a summary of 2018:



8 reports, papers, posters or conference presentations



240 audience at seminars & webinars



389 subscribers to public newsletters

25 attendants at PhD course in LCA



19 expert and working group meetings



85

Twitter followers 2017

203

Twitter followers 2018

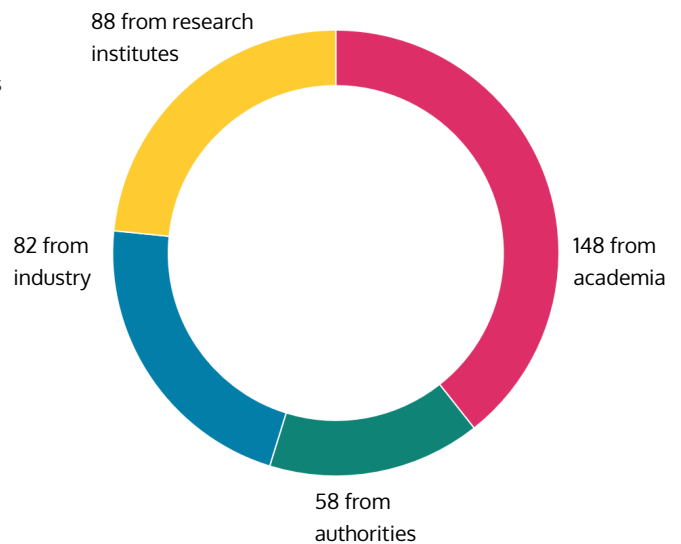


137

LinkedIn followers 2017

325

LinkedIn followers 2018



Activities 2018

Many of the events are arranged thanks to the project *Swedish platform for the life cycle perspective* (funded by the Swedish Energy Agency) and Swedish Life Cycle Center. A selection of events are presented below.

FEBRUARY 7

Seminar: Teaching LCA at universities. Arranged by the Academy Group, Gothenburg.

FEBRUARY 7

Network conference: The role of life cycle thinking in a Circular economy, Gothenburg.

FEBRUARY 14

Seminar: A Life Cycle Perspective on future capital intensive new technologies and systems. A co-arrangement with the Swedish Energy Agency.

APRIL 13

Webinar: Remanufacturing - what is it? with Erik Sundin, Linköping University.

APRIL 19

Seminar: The future for vehicle manufacturing. Arranged by the Working group LCA & vehicles, Stockholm.

MAY 22

Seminar: Latest news about Environmental footprint (PEF and OEF). Co-arrangement with IVL Swedish Environmental Research Institute, Gothenburg.

MAY 23

Seminar: Sustainable procurement - the role of a life cycle perspective, Stockholm.

JUNE 5

Webinar: Introduction to the EPS Enviro-accounting method with Tomas Rydberg, IVL Swedish Environmental Research Institute.

JUNE 20

Information meeting: Become a partner in Swedish Life Cycle Center.

OCTOBER 17-DECEMBER 20

PhD course: Advances in life cycle assessment, 5 HEC, Gothenburg. Organized by SLU and Swedish Life Cycle Center Academy group.

OCTOBER 25

Webinar: Using EPS in product development with Mia Romare, IVL Swedish Environmental Research Institute, and Per Hanarp, Volvo Group Trucks Technology.

NOVEMBER 9

Seminar & workshop: LCA & vehicles, Gothenburg

NOVEMBER 14-15

Conference: Presentation and exhibition boot at Nationell verkstad för hållbara livsstilar, Karlstad.

NOVEMBER 21

Webinar: Towards increased impact of life cycle information with Emma Rex, RISE Research Institutes of Sweden.

DECEMBER 12

Information meeting: Become a partner in Swedish Life Cycle Center.

Short facts about Swedish Life Cycle Center

Organization type: A center of excellence

Location: Hosted by Chalmers University of Technology, Gothenburg

Vision: Credible & applied life cycle thinking globally

Age: 23

The center in 3 words: cross-collaboration, co-creation, knowledge building

Partners: 14 partners and in collaboration with 7 government agencies

A neutral platform

The partners of Swedish Life Cycle Center is the foundation. Partners contribute to activities, start cross-sector research projects, hold a seat in the Board and form the agenda of the center. Contact us if you are curious in partnership!

The center is financed jointly by partners and Chalmers University of Technology (host for the center). From January 2017, Swedish Life Cycle Center is managing the project Swedish platform for the life cycle perspective, funded by the Swedish Energy Agency.

Contact



www.lifecyclecenter.se



lifecyclecenter@chalmers.se



Swedish Life Cycle Center



@Lifecyclecenter

Partners 2018

CHALMERS

essity

ivl
MILJÖINSTITUTET



Nouryon

RI
SE



SKF



VOLVO



In collaboration with

Boverket



Konsument
verket • KO



Swedish Life Cycle Center

Chalmers University of Technology

Text and layout by Ulrika Georgsson

Report no: 2019:02