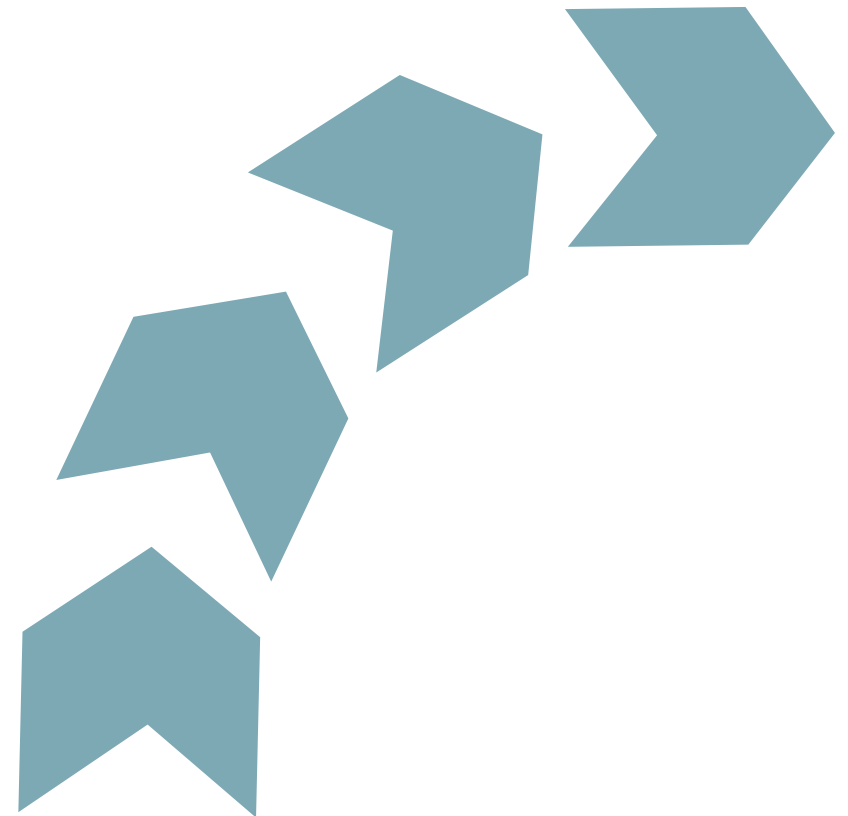




Swedish Life Cycle Center

# Swedish Life Cycle Center Summary report stage 7

October 2012 – December 2015



2016 Swedish Life Cycle Center  
 Centre for Environment and Sustainability (GMV)  
 Chalmers University of Technology  
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## TABLE OF CONTENTS

Swedish Life Cycle Center	3
Stage 7 and Swedish Life Cycle Center in numbers	4
Welcome to the summary report of stage 7	5
Our contribution to sustainable development - some examples	6
Research projects - during stage 7	13
Working groups and expert groups	14
Communicatin and networking activities	16
Partners, people, the organization and network	18
Added value of being a partner	19

## SWEDISH LIFE CYCLE CENTER

Swedish Life Cycle Center is a center of excellence for the advance of applied life cycle thinking in industry, policy and other parts of society. The center was founded in 1996 and is a joint collaboration platform for universities, industries, research institutes and government agencies for competence building and exchange of experience to move the life cycle field forward.

Partners in stage 7 have been ABB, AkzoNobel, Chalmers University of Technology (host of the Center), IVL Swedish Environmental Research Institute, KTH Royal Institute of Technology, NCC Construction, SCA, SKF, SLU Swedish University of Agricultural Sciences – Department of Energy and Technology and Department of Biosystems and Technology, SP Technical Research Institute of Sweden, Swedish Environmental Protection Agency, Vattenfall, Volvo Car Group and Volvo Group.

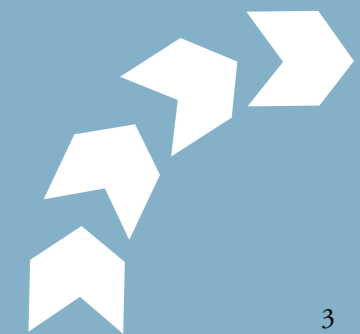
Our values and principles, on which we build our work on, are:  
 Transparency, openness, credibility, a scientifically base and cross-sectorial solutions.

### Our vision

Credible and applied life cycle thinking globally.

### Our mission

Work for the integration of the life cycle perspective into processes and decision making in industry, policy and other parts of society, to make more sustainable products and services, increase resource efficiency and accelerate the transition towards more sustainable consumption and production patterns.



## STAGE 7 AND SWEDISH LIFE CYCLE CENTER IN NUMBERS

- 14 partners
- 330 people in network
- 13 board meetings
  
- 9 research projects, 92 participants, 48 organizations
- 5 administration projects, 62 participants, 86 organizations
- 5 workings groups: LCA Data & Methodology, Economic valuation, LCA Biodiversity & Land use, social LCA, LCA certifications
- 2 expert groups: Environmental footprint, Data strategy
- 158 people involved in working groups and expert groups
- 61 working and expert group meetings
  
- 29 seminars, workshops and webinars
- 3 network conferences
- 14 center publications
- 27 newsletters

## WELCOME TO THE SUMMARY REPORT OF STAGE 7

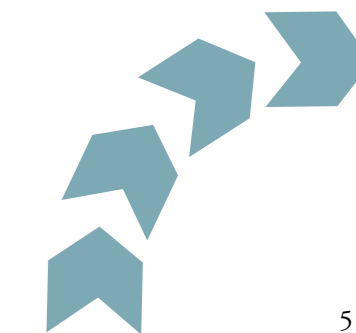
This summary report gives an overview of Swedish Life Cycle Center and its impact and activities to work for our vision credible and applied life cycle thinking globally-during stage 7, from October 2012 to December 2015. Stage 7 has been characterized by new collaborations, increased internationalization and improved ways of working of the center management.

During stage 7, CPM – Center for environmental assessment of product and material systems, officially became Swedish Life Cycle Center. The new expression will show the broader perspective of the life cycle field and also a wider national representation. During the stage, Swedish Life Cycle Center increased by six new partner organizations, hosted the 6th international conference on Life Cycle Management (LCM 2013), initiated a new ISO standard on monetary valuation, supported the Swedish and European process on Environmental Footprints and built a partnership with UNEP on life cycle assessment data infrastructure. Some of these highlights from the stage are summarized in this summary report.

The Board and the Technical secretariat would like to thank all partners and participants who have been actively involved in the Swedish Life Cycle Center during stage 7. This engagement has contributed to the life cycle field in the pursuit of sustainability. We look forward to a continued cooperation in stage 8 (2016-2018) to together work for the integration of the life cycle perspective into processes and decision making in industry, policy and other parts of society, to make more sustainable products and services, increase resource efficiency and accelerate the transition towards more sustainable consumption and production patterns.

If your organization or you are interested to take part in the center or contribute in our activities, you are welcome to contact the Technical secretariat.

Best regards  
Sara Palander, Director Swedish Life Cycle Center  
Anna Wikström, Project manager Swedish Life Cycle Center



## OUR CONTRIBUTION TO SUSTAINABLE DEVELOPMENT - some examples

### International collaboration on monetary valuation

With a long history and expertise researchers and professionals active in Swedish Life Cycle Center and SIS Environment Management Project initiated a working process to develop a new ISO standard on monetary valuation of environmental impacts from specific emissions and natural resources. The overall aim is to together develop a common language and an international guideline in this field. Pre meetings have been arranged by Swedish Life Cycle Center and SIS to investigate the interest for an ISO standard. This work resulted in a New Work Item Proposal and later an international working group where SIS holds the Technical secretariat.

A kick off meeting for the international working group will be organized in February 2016 in Gothenburg at Chalmers University of Technology and the process towards the new ISO 14008 standard will then start. A Swedish working group is coordinated by SIS and Swedish Life Cycle Center has a working group to follow and influence this process.

### The European Environmental footprint process – a learning process

Methods for environmental footprinting of products and services have been and are being developed all over the world. In April 2013, the European Commission in its communication Single Market for Green Products (SMGP) proposed actions to overcome problems on the internal market caused by this proliferation of initiatives.

The SMGP established two methods to measure environmental performance throughout the lifecycle, the Product Environmental Footprint (PEF) and the Organisation Environmental Footprint (OEF). The European Commission recommends their use by Member States, companies and others. The SMGP also announced a three-year pilot phase to develop product- and sector-specific rules.

In connection to the launch of the SMGP, a seminar with in Swedish Life Cycle Center resulted in the establishment of an expert group in 2014 for PEF and OEF methodology discussions. The group has an ambition to follow, learn and influence the PEF and OEF and share experiences from working with EU EF methodology and from pilots. The expert group is also giving support to the Swedish representatives in the EF Steering Committee (Eva Ahlner, Cecilia Mattsson and Anita Lundström at the Swedish EPA) and the EF Technical Advisory Board (Elin Eriksson

at IVL Swedish Environmental Research Institute). As the methodology will be of importance for different industry sectors, business members in the expert group also have made their own “pilots” to evaluate the methodology when applied to their products and services. The process will continue in 2016.



*Elin Eriksson and Bengt Steen during a workshop on weighting in Environmental Footprint, Brussels, Nov 2015.*

*“Swedish Life Cycle Center provides a natural platform for dialogue with other companies facing similar challenges. It is also a great opportunity for new contacts within the network.”  
Sara Nilsson, Environmental advisor at Vattenfall*

### Award to the center project TOSCA – sustainable supply chains

The Best LIFE Environment projects 2012 publication profiles those environment projects that were completed by the end of 2012 and were acknowledged at the LIFE Environment Awards as having achieved outstanding results. For the ninth consecutive year, the awards highlighted best practices and innovative actions that can be replicated in other areas of Europe.

The TOSCA project, Towards sustainable supply chains through a common approach for company strategic work and daily operations, was one of the best project in 2012.

Conclusions from The LIFE TOSCA project has provided the means for companies and industrial sectors to improve their environmental performance by addressing sustainability in value chains extending both upstream and downstream. Through the participation of AkzoNobel and SCA, it has also demonstrated that such a process can be integrated into the business practices of large companies.

It provides the key message that with the active engagement of several players in the value chain, economic development can be much more environmentally sustainable. However, the ultimate impact of the project will depend on the extent to which companies and industries heed the project’s message and use its tools.

The TOSCA project was managed in collaboration between the organization’s AkzoNobel, Chalmers University of Technology and SCA. Project manager was Johan Widheden, AkzoNobel.



*TOSCA - Towards sustainable supply chains through a common approach for company strategic work and daily operations.*

*“Swedish Life Cycle Center is a place for networking and a facilitator for new research projects. The center has during stage 7 been good in mobilize Swedish expertise and a contact node within the life cycle field.”  
Anna Björklund, Lecturer and Associate Professor at KTH*

### Position in SETAC Europe LCA Advisory group and Steering committee

Swedish Life Cycle Center has had a strong position in SETAC Europe LCA Advisory group and Steering committee. The committee is being chaired by Tomas Rydberg at IVL Swedish Environmental Research Institute and secretary is Sara Palander from the Swedish Life Cycle Center Technical secretariat.

The committee is aimed at advancing the science, practice, and application of LCAs to reduce the resource consumption and environmental burdens associated with products, packaging, processes, or activities.

This is achieved by means of a series of initiatives that includes, among others, the planning and organization of LCA session at the annual meeting and conferences, such as the LCA Case Study Symposium.

*SETAC - Society of Environmental Toxicology and Chemistry*



## Open and accessible life cycle data

The formation of Swedish Life Cycle Center in 1996 was largely based on the recognition that inter-organisational collaboration is needed to increase the availability of life cycle data. Lately, on the international scene, awareness of the need for open life cycle data (LC data) has emerged and has on many arenas surpassed Swedish initiatives on development and provision of LC data. There exist many ambitious initiatives for fully open data, such as Life Cycle Data Network, Global Network of Interoperable LCA Databases (Global LCAccess), and some national life cycle inventory (LCI) databases.

### Life Cycle Data Network

During 2014, the center started to look into the data area more deeply and has taken part in some of the initiatives mentioned above. When the Life Cycle Data Network was launched, the center was invited and the center was represented by Katarina Lorentzon (SP Technical Research Institute of Sweden).

### Global Network of Interoperable LCA Databases (Global LCAccess)

During an international workshop in Washington DC, organized by US EPA (US Environmental Protection Agency) USDA (US Department of Agriculture) and UNEP (United Nations Environment Programme) - the initiators of the Global Network of Interoperable LCA Da-

*“Swedish Life Cycle Center has during stage 7 become a stronger voice in the society with higher international influence” Lennart Swanström, Senior Principal Scientist at ABB*

tabases (Global LCAccess), Sweden was invited as expert in the meeting. Johan Tivander, Chalmers University of Technology, and Eva Ahlner, Swedish EPA, represented Sweden and the Swedish Life Cycle Center. Swedish Life Cycle Center produced a position paper with important input, based on our own journey, to influence in the early stage of this initiative.

The Global LCAccess has been managed by UNEP and Swedish Life Cycle Center was asked to start up a partnership with UNEP to coordinate the startup process to see in which direction this initiative should continue. This work will be managed through Johan Tivander (Chalmers University of Technology), Christoffer Krewer (SP Technical Research Institute of Sweden), Raul Carlson (Swerea Swecast, earlier involved in the center) and Sara Palander (Swedish Life Cycle Center) together with the international working groups. This work will be done mainly in 2016 and presented in Brazil. Llorenc Mila I Canals is project manager for the overall process and Sven-Olof Ryding (Swedish EPA) represents Sweden in the Steering committee.

### Open LCA

In 2015, the center gave permission to GreenDelta to update the most relevant data within the Swedish Life Cycle Center Database (former CPM LCA Database) and make these data more accessible through Open LCA.

### Thinkstep

In 2013, Swedish Life Cycle Center working group on LCA data started a collaboration with Thinkstep to in-

## National programme on sustainable consumption and production

crease the dialogue regarding LCA related data issues. The United Nations has decided on a ten year framework on programs to achieve goals for sustainable consumption and production patterns (10YFP-SCP) and is an international cooperation to accelerate the shift towards sustainable production and consumption in both developed and developing countries.

The Swedish Environmental Protection Agency (Swedish EPA) has been commissioned by the Ministry of Environment to a national focal point for 10YFP-SCP and will lead the work to inspire to action by emphasizing and highlighting good examples that encourage greater exchange of knowledge. Eva Ahlner (Swedish EPA) is leading the work and Susan Iliefski-Janols (SCA) is a member in the national reference group. The Swedish work within 10YFP-SCP was started with a kick off on April 3, 2014 in Stockholm.

Swedish Life Cycle Center has been involved in the National workshop for sustainable lifestyles in 2015, organized by Swedish EPA, through a work station with the topic “How life cycle thinking can make the decision easier for a consumer”.

*“The collaboration within Swedish Life Cycle Center has resulted in shorter take-off for new projects and possibilities for us to be part of research projects. The center is a shortcut for strategic intelligence within the life cycle field.” Lisbeth Dahllöf, Sustainability Analysis Specialist at Volvo Group*

## Coordination of two national research and innovation agendas

### Life cycle based innovation

In 2013 the Swedish Life Cycle Center coordinated the national research and innovation agenda on life cycle based innovation, funded by VINNOVA, Sweden’s innovation agency. The aim was to develop a research and innovation agenda for a leading position within industrial and societal development where life cycle thinking and sustainability is used as a basis for innovation.

### About the agenda

“Life Cycle Based Innovation” is an agenda which describes how Sweden In 2030 leads long term competitive sustainable innovation within products, services, public policy and businesses in a holistic perspective, encompassing environmental, economic and social resources in value chains.

This means that in strategic and operational decision-making within small and large companies, authorities and organizations, it is standard procedure that the environmental, social and economic aspects of products and services are optimized across the entire value chain. This result in long-term competitive businesses exploiting the opportunities presented by the life cycle perspective and with good preparedness to meet future challenges such as changes in resource availability, increased demands for information and new regulations.

### Life cycle assessment data

In 2015, the center was chosen by the Swedish Energy Agency to coordinate a national research and innovation agenda on life cycle assessment data. The aim of the project is to develop a common strategy in the area of LCA data for Sweden. The agenda will be published in 2016.

### About the agenda

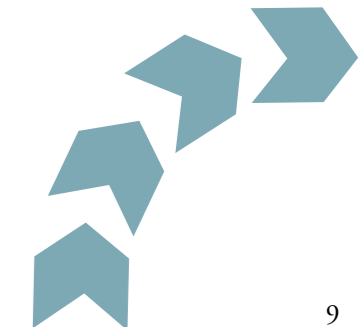
“Life Cycle Assessment Data – a prerequisite for sustainable innovation” is an agenda which demonstrates the benefits of a common national strategy for life cycle assessment data (LCA data). LCA data can be used by organizations to measure, follow up and reduce environmental impact. LCA data can also be used to ensure credible and reliable marketing of environmental performance. Increased availability of reliable LCA data has the potential to strengthen Swedish competitiveness on the international market and make Sweden a more attractive country in which to perform operations.



*Dialogue meeting towards Life cycle based innovation, October 2012.*



*Workshop to develop the Life cycle assessment data agenda, February 2016.*



## A new version of the Environmental Priority Strategies system (EPS)

The new version was released in 2015 and has been developed within the research project "Integration of environment and economy in product development - opportunity for innovation", financed by VINNOVA Sweden's innovation agency. Environmental Priority Strategies (EPS) index will from 2016 be available in both LCA softwares SimaPro and GaBi.

The project is a collaboration between AkzoNobel, Chalmers University of Technology, IVL Swedish Environmental Research Institute, SCA and Volvo Group. The project is managed by Bengt Steen, Chalmers University of Technology, and Maria Lindblad, IVL Swedish Environmental Research Institute, and will continue in 2016.

### About the Environmental Priority Strategies system

EPS is a systematic approach to choose between design options in product and process development. Its basic idea is to make a list of environmental damage costs available to the designer in the same way as ordinary costs are available

*"Within the center, we have in this stage developed methods and tools that are today being used at AkzoNobel. We also need to say that the LCM 2013 conference was a great success." Klas Hallborg, Manager New Developments in Sustainability at AkzoNobel*

for materials, processes and parts. The designer may then calculate the total costs over the products life cycle and compare optional designs.

The EPS system was developed to meet the requirements of an everyday product development process and product design where the environmental concern is just one among several others. The development of the EPS system started in 1989 and has since then it has been modified several times during projects.

### About EPS impact assessment method

EPS includes an impact assessment (characterisation and weighting) method for emissions and use of natural resources, which can be applied in any life cycle assessment (LCA).

The results of the EPS impact assessment method are damage costs for emissions and use of natural resources expressed as ELU (Environmental Load Units). One ELU represents an externality corresponding to one Euro environmental damage cost.

### Future management

EPS will from 2016 be managed and supported by IVL Swedish Environmental Research Institute.

In 2014, 17 researchers and professionals from industry, universities and research institutes have attended a two-day training in EPS, lead by Bengt Steen, Chalmers. The ambition was to educate these to better understand how and why EPS was developed and to get an understanding of the numbers behind EPS.



*Bengt Steen, Chalmers University of Technology, one of the core researchers behind the EPS system.*

## The successful conference series - Life Cycle Management

The Life Cycle Management (LCM) conferences are established as one of the leading conference series worldwide in the field of environmental, economical and social sustainability. The unique feature of LCM is practical solutions for the implementation of the life cycle approaches into strategic and operational decision making.

Successful organization of the 6th International Conference on Life Cycle Management in Gothenburg 2013 (LCM 2013)

In August 2013 the LCM 2013 in Gothenburg gathered 543 delegates represented by 43 countries. One third from



*Emma Rex, Swedish Life Cycle Center and chair of the LCM 2013, during the welcome reception.*



*Chalmers University of Technology exhibition booth, visited by keynote speaker Theresa Fogelberg, Global Reporting Initiative.*



*Boat tour through Gothenburg harbor in our way to the conference dinner.*



*Swedish Life Cycle Center exhibition booth at LCM 2015 in Bordeaux.*

*"Swedish Life Cycle Center is an important node for us to go outside the research and into the industrial and governmental perspective." Serina Ahlgren, Senior Lecturer at SLU Swedish University of Agricultural Sciences*

academia, one third from business and the last third from governmental organizations, NGOs and other. The conference was a great success and included a broad perspective on managing life cycles, from research to implementation and decision making in business, policy and other parts of the society.

The overall conference was very well and friendly organized and gave the delegates an open arena for new meetings and exchange opportunities for open discussions and exchanges.

The final program consisted of 200 oral presentations and 160 poster presentations.



High visibility on the 7th International Conference on Life Cycle Management in Bordeaux 2015 (LCM 2015)

Sweden and the Swedish Life Cycle Center were well represented during the conference, both in the scientific program and as conference delegates. The Swedish Life Cycle Center exhibition booth was manned by partners. In many dialogues, the Swedish Life Cycle Center was mentioned as role model for collaboration and also the high credibility was mentioned.

We are happy to say that we, Swedish Life Cycle Center with partners, did a great job when organizing LCM 2013 in Gothenburg two years ago. People are still talking about "our" conference and also in the opening session the LCM 2013 was given credit to increase and include the business and governmental perspective in a higher level to the LCM conference series.

## A meeting place where we create and share best practice

Swedish Life Cycle Center has during stage 7 organized three network conferences with the aim to to networking, exchange information, learn from each other and discuss around specific topics.

The first day gave an overview over all the center projects, expert- and working groups which was important for all new partners to see what is already included and how to be involved. Per Lagerstedt from Nordic Investment Bank was invited to this day to give a presentation on how they as a financial institution, is working to improve the environmental aspects of investments and projects. Per expressed their interest in translation of environmental impacts into monetary value, e.g. with regards to ecosystem services.

The second conference focused on economic valuation to meet the interest among partners and to get an insight in the different projects within this area. Mark Goedkoop, CEO at PRé Sustainability, was invited to report from a business led conversation on Natural Capital and discussed around the typical results from studies. Mark emphasized the importance of going behind the numbers and to really understand what the questions are when putting a price on nature.

The last conference highlighted the social part of life cycle assessment and opened up for round table discussions

between participants. Bernard Mazijn invited speaker from Social Life Cycle Alliance (Global LC Alliance) gave an introduction to Social LCA and the Guidelines for Social Life Cycle Assessment of Products. Bernard highlighted the importance of collaborating with social scientists. He also mentioned the importance to get to know your value chain and what is happening there to be able to increase the awareness about companies' risks. Today, social life cycle assessment has gained momentum and more case studies are being done. New initiatives are popping up, built on the guidelines.

These network conferences have been arranged by the Technical secretariat together with experts in the different working groups and projects within the center. These activities have been of high value for the center partners and have given participants opportunities to learn and understand from each other and have also open up for new collaborations.

Thanks to everyone who participated and contributed to the network conferences.

*"The most important part in stage 7 has been to see how other organizations is working with the actual implementation of the life cycle knowledge." Larissa Strömberg, LCA and climate coordinator at NCC*

*"The extended group of partners has been a great success. Stage 7 has also forwarding the position of life cycle thinking in Swedish policy making." Katarina Lorentzon, SP Technical Research Institute of Sweden*



*Photos from Swedish Life Cycle Center Network conferences in stage 7.*

## RESEARCH PROJECTS - during stage 7

### Credible and applied knowledge and information

Swedish Life Cycle Center has a scientific foundation, gained from collaboration between the center's partners in cross-sectoral research projects. The center is also running other types of projects, which are focusing on communication, coordination and collaboration in strategic joint efforts. All projects are funded by a funding agency with in kind contribution from partners.

The key words for research carried out by and run within the center are:

- Cross-sectorial – all research ideas shall have a cross-industry solution focus.
- High involvement by partners - all research projects aim to have a broad interest among partners and involves industry partners to develop tools and methods that.
- Applied research – to secure the development of relevant methods and tools, all research projects should involve industry partners and aim to develop knowledge that can be used among practitioners, and
- A life cycle perspective!

Projects during stage 7 has been the following:

Transport systems - Tool for external calculations from transportation routes. Project manager Erik Fridell, IVL Swedish Environmental Research Institute. Funded by VINNOVA Sweden's innovation agency.

Environmental Priority Strategies (EPS) in design. Project manager Bengt Steen, Chalmers University of Technology. Funded by Chalmers Strategic Production Initiative.

Life cycle data conversion to international standard. Project manager Johan Tivander, Chalmers university of Technology. Funded by VINNOVA Sweden's innovation agency.

Environmental decisions in product planning. Project managers Anne-Marie Tillman and Jutta Hildenbrandt, Chalmers University of Technology. Funded by Chalmers Strategic Production Initiative.

Externalities in product development - possibilities for innovation. Project manager Maria Lindblad, IVL Swedish Environmental Research Institute. Funded by VINNOVA Sweden's innovation agency.

Development of method and application within monetisation. Project manager Göran Finnveden, KTH Royal Institute of Technology. Funded by Swedish Energy Agency.

Integration of environment and economy in product development - opportunity for innovation. Project managers Bengt Steen, Chalmers University of Technology, and Maria Lindblad, IVL Swedish Environmental Research Institute. Funded by VINNOVA Sweden's innovation agency.

F3 Well-to-wheel LCI data for fossil and renewable fuels in the Swedish market. Project manager Tomas Rydberg and Lisa Hallberg, IVL Swedish Environmental Research Institute. Funded by F3 centre Fossil Free Fuels.

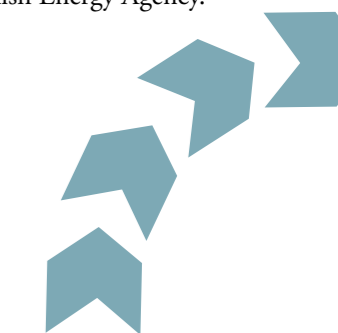
Adapted decision support for increased energy efficiency in value chains. Project manager Emma Rex, SP Technical Research Institute of Sweden. Funded by Swedish Energy Agency.

Life cycle based innovation – a national research and innovation agenda. Project managers Emma Rex and Sara Palander, Swedish Life Cycle Center. Funded by VINNOVA Sweden's innovation agency.

Swedish leadership for global life cycle thinking. Project managers Emma Rex and Sara Palander, Swedish Life Cycle Center. Funded by VINNOVA Sweden's innovation agency.

Good examples – inspiration to energy efficiency through the entire value chain. Project manager Anna Wikström, Swedish Life Cycle Center. Funded by Swedish Energy Agency.

National strategy for development of energy production related environmental data for sustainable innovation – A national research and innovation agenda. Project managers Sara Palander and Carl Karheiding, Swedish Life Cycle Center. Funded by Swedish Energy Agency.



# WORKING GROUPS AND EXPERT GROUPS

Forums for competence building and to influence the national and international agenda

The working groups aim to build up competence and exchange information between experts. The groups manage discussions on hands-on issues, joint understanding on issues, methodologies, new research questions, joint strategic intelligence and direct feedback on organizations' work. Swedish Life Cycle Center is also coordinating expert groups for specific tasks or advising support.

These groups normally start without any external funding. The Technical secretariat supports the upstart process, the coordination and communication, and participating partners do so in kind. Each working group has appointed one chair and secretary to chair the meetings and do the preparation work. Meetings are held through web, phone or physical meetings. The aim of these groups is varying and is set by the participants.

During stage 7 the Swedish Life Cycle Center has run five working groups;

- Economic valuation
- LCA data & methodology
- LCA certification (new)
- Social Life Cycle Assessment (new, see below)
- Biodiversity and land use in LCA (new, see below)

During stage 7 the Swedish Life Cycle Center has run two expert groups;

- Environmental footprint
- Data strategy

Social life cycle assessment

The area of Social LCA (i.e. methods to assess the social aspects of products throughout the life cycle) has continued to grow both in the life cycle community and in the sustainability area. In 2014, SLC started a working group on Social LCA which involves several researchers and practitioners from different organizations with expertise within the social area. The aim of the group is to understand the existing methodologies and guidelines and how it can be implemented in businesses, but also to identify research questions and research groups. To better understand existing methods and guidelines, meetings have been arranged with some of the team behind the most known methods and guidelines. A letter has been written to the Swedish government to highlight the social aspects in sustainability and products' and services' life cycle. The group work has been characterized by sharing experiences and internal discussions to build up a common understanding in the field. Seven meetings and a network conference has been taken part during stage 7. The working group has 31 members.

Biodiversity & land use

The interest in assessment of biodiversity and land use in LCA has been growing during the last years and so also

among the center partners. This resulted in a new working group in 2012, which in the first phase was about identifying a group of researchers and practitioners who have an interest and competence in this area. The overall aim of this group is sharing experience and best practice on how to deal with biodiversity and land use and also contribution to the larger community. Outcomes from this group have been initiating of research applications, research projects, links to international research groups, recommendations to the European Environmental Footprint process and involvement in a feedback process for Vattenfall's "the biotope method". The working group has today 28 members and has organized eleven meetings during stage 7.

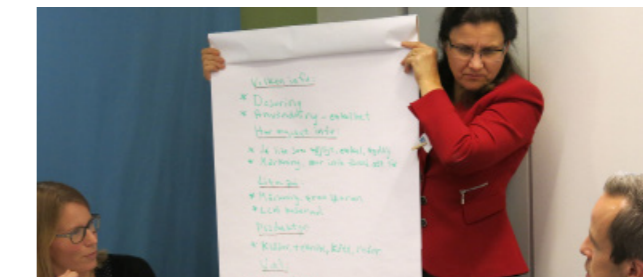
In stage 7, 158 researchers and professionals have been involved in working groups and expert groups. 61 working and expert group meetings have been held.



Swedish Life Cycle Center Board and Technical Secretariat, stage 7, September 2014.



Swedish Life Cycle Center information sheet.



Susan Iliefski-Janols, SCA, in the National workshop for sustainable lifestyles, November 2015.

"Swedish Life Cycle Center is a natural gate for Swedish EPA when it comes to life cycle expertise to develop new public instruments. The newsletters have also been a good way to be updated and informed within the field." Emelie Aurell, Environmental economist at Swedish EPA

"It has been of importance for our company to be part of the high level discussions about biodiversity." Susan Iliefski Janols, Sustainability director at SCA



Birger Löfgren, SKF, in a workshop during LCM 2013, August 2013.



Lisbeth Dahllöf, Volvo Group, and Matilda Sjölin, SKF, in the workshop Enablers of life cycle energy approaches in large companies, October 2015.



# COMMUNICATION AND NETWORKING ACTIVITIES

## Life cycle thinking globally - spread the knowledge

Main communication and networking activities for Swedish Life Cycle Center are workshops, seminars, webinars, educational courses and Swedish Life Cycle Center's network conferences. These activities are either internal for partners or for our external network. The communication channels are our LinkedIn-group, website and newsletters.



Swedish Life Cycle Center Network conference, February 2014.

The list below shows a summary of activities organized by Swedish Life Cycle Center during stage 7.

### 2012

Workshop: Life cycle based agenda – life cycle based innovation. Stockholm, October 17.

### 2013

Workshop: Så gör vi Sverige ledande inom livscykel driven innovation, Gothenburg, January 29.

Seminar: Social Life Cycle Assessment. Co-arrangement with CSR Västsverige. Gothenburg, January 30.

Seminar: Sätt pris på miljön och stärk den demokratiska processen. Co-arrangement with GMV and Ekocentrum. Gothenburg, March 13.

Seminar: Life Cycle Assessment and Nano Materials. Guest speaker Associate professor Stig Irving Olsen, DTU in Stockholm. Arranged by KTH, March 22.

Workshop: Recycling approaches in LCA. Arranged by SCA. Gothenburg, June 4.

Workshop: Why prepare for “right prices”? Gothenburg, June 11.

Conference: The 6th International Conference on Life Cycle Management (LCM 2013). Gothenburg, August 25-28.

### 2014

Seminar: Design for Recycling. Guest speaker Taina Flink, Stena Recycling. Gothenburg, August 27.

Webinar: Ecoinvent and LCA data. Guest speaker Gregor Wernet, Ecoinvent. September 22.

Network Conference: Activities in Swedish Life Cycle Center. Stockholm, September 10.

Video conference: PhD students and researchers in Swedish Life Cycle Center. November 7.

Educational course: Environmental Priority Strategies. Given by Bengt Steen, Chalmers University of Technology. Gothenburg, August 19 and November 12.

Webinar: Summary of the international seminar on Social LCA in Montpellier. Given by Rickard Arvidsson, Chalmers University of Technology. December 2.

Seminar: Introduction to life cycle perspective. Presentations by Sara Nilsson, Vattenfall, and Serina Ahlgren, SLU. Stockholm, December 10.

Seminar: Introduction to life cycle perspective. Presentations by Emma Rex, SP Technical Research Institute of Sweden and Johan Widheden, AkzoNobel. Gothenburg, December 11.

### 2015

Network conference: Economic valuation of social and environmental impact. Gothenburg, February 5.

Seminar: Resurseffektivitet – vägen till ett konkurrenskraftigt företag. Presentations by Mats Rosenquist, Volvo Group Trucks Technology, Susan Iliefski-Janols, SCA and Caroline Ankarcrona, IVA. Gothenburg, February 18.

Webinar: LCA & Electrification of vehicles. Presentations by Anders Nordelöf, Chalmers University of Technology, Sofia Poulidikou, KTH Royal Institute of Technology, Jessica Andreasson and Andreas Andersson, Volvo Car Group. March 5.

Seminar: Monetary valuation of carbon dioxide and resources at Swedish Energy Agency. Speakers were Lina Isacs, KTH Royal Institute of Technology, and Linnea Petersson, ABB. Eskilstuna, March 11.

Webinar: LCA including chemicals – methods and practice. Given by Sandra Roos, Chalmers University of Technology. April 14.

Webinar: The Biotope Method. Given by Thomas Olsson, Vattenfall. June 16.

Webinar: Future Proofing Business & Finance – Valuing Natural Capital. Guest speaker Dorothy Maxwell, Founder and Director at the Sustainable Business Group. June 24  
Network conference: Social Life Cycle Assessment. Stockholm, September 14.

*“The collaboration and discussion of the European environmental footprint process has been of high value for the Swedish influence in the overall European process. The collaboration has also given IVL Swedish Environmental Research Institute unique contacts.” Elin Eriksson, Director Organisations, Products and Processes at IVL Swedish Environmental Research Institute*

Webinar: ABB Group Sustainability Objectives – development and implementation. Given by Lennart Swanström, ABB. September 21.

Webinar: Developing the Social Capital Protocol. Guest speaker Kitrhona Cerri, WBCSD. October 12.

Workshop: Enablers of life cycle energy approaches in large companies. October 21.

Webinar: Shaping the circle. Given by Juana Camacho Otero, Chalmers University of Technology. November 11.

Webinar: OpenLCA. Guest speaker Andreas Ciroth, GreenDelta. November 23.



Elisabeth Ekener Petersen, KTH, presentation at Swedish Life Cycle Center Network conference, September 2015.



Klas Hallberg, AkzoNobel, at LCM 2013, August 2013.

### Newsletters

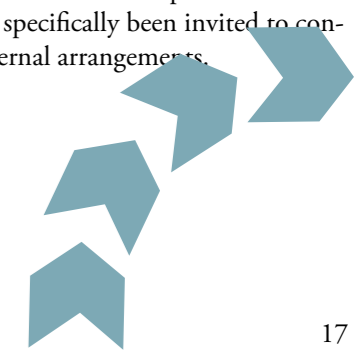
The center has started to send out newsletters to partners more frequently. 27 number of newsletters have been sent out during the stage. The newsletters which has over 300 receivers, collects news from partners, life cycle related seminars and conferences, calls and the latest publications from partners or the life cycle community.

### LinkedIn group

Since 2013, Swedish Life Cycle Center administrates a LinkedIn group. The aim is to increase the interaction within the life cycle field and to better communicate and spread information from the center. The group has over 140 members and consist of both partners and others in the life cycle community.

### Contributions at external arrangements and reports

Swedish Life Cycle Center, by the Technical secretariat and partners, have participated in a number of national and international conferences, seminars and reports. Swedish Life Cycle Center has also specifically been invited to contribute to a number of external arrangements.



## PARTNERS, PEOPLE, THE ORGANIZATION AND NETWORK

### Stronger impact with six new partner organizations

During stage 7, six new partners joined Swedish Life Cycle Center, namely the KTH Royal Institute of Technology, NCC Construction, SLU Swedish University of Agricultural Sciences – Department of Energy and Technology and Department of Biosystems and Technology, SP Technical Research Institute of Sweden, Vattenfall and Volvo Car Group. For the center this means greater collaboration opportunities, greater opportunities to influence the national and international agenda and exchange knowledge and experience among researchers and professionals within the life cycle field.



### Administration

#### Host of the center

Swedish Life Cycle Center is hosted by Chalmers at the department/institution Centre for Environment and Sustainability (GMV). GMV is a network organisation at both Chalmers and University of Gothenburg with the aim to promote research and education for sustainable development. In the beginning of stage 7 the center had no host department/institution, but since 2013 the center is hosted by GMV. Being hosted at GMV give partners an academic environment and a neutral arena for collaboration and discussion. Swedish Life Cycle Center is also hosted by Chalmers Production area of advanced.

#### People and network

Swedish Life Cycle Center is an immaterial organization with its human resources spread among the partners. In the beginning of the stage 7 the network of Swedish Life Cycle Center consisted of in total almost 200 number of people. Of these 90 people were active in the board, working groups or research project etc. During the stage the number of active people together with the size of the network has increase. When leaving stage 7 the number of active people were about 200 and the total network consisted of 330 people.

### Board

The board takes decision on the strategic development of the center by taking decisions on the center's project portfolio (e.g. working groups, expert groups, research projects, administration projects), and decisions regarding the center's operations. The board consists of one board member from each partner. Chair woman during stage 7 was Elisabet Olofsson.

During the later part of the stage, the center started up a preparatory board with the aim to prepare decisions for board meetings and be strategic support to the technical secretariat between the board meetings if necessary. The Preparatory board was chaired by Katarina Lorentzon.

#### Technical secretariat

In January 2014 Sara Palander took over as the new director of the center after Emma Rex. The technical secretariat was also partly supported by Elisabeth Hochschorner which gave the center an administrative support and filial at KTH. Sara runs the center together with the project manager Anna Wikström since 2014. During 2013, the technical secretariat was supported by Annika Burström.

#### Steering documents

During stage 7, Swedish Life Cycle Center main steering documents have been the main agreement and operational plan for stage 7. Since 2014 these have been complimented with a new Operational handbook which describes roles and responsibilities and a new communication strategy.

## ADDED VALUE OF BEING A PARTNER

### Qualitative evaluation

During 2014, a qualitative evaluation of Swedish Life Cycle Center was carried out with the aim of investigating the added value of being a partner in Swedish Life Cycle Center and the added value of being hosted by Chalmers University of Technology. The study also aimed to identify potential for further improvement towards efficient cooperation. It was carried out as an interview study, with each partner's board representative being interviewed.

The results show that many see great value in being a partner in Swedish Life Cycle Center however the value of being a partner is varies depending on partner organization. This value is summarized in three parts.

- The **importance of working together to build up scientifically based knowledge and tools** that can be applied and implemented in internal strategies and working processes.
- The **unique contacts** with other experts and initiatives, which leads to **new collaboration projects and insights**.
- The **joint effort** with frontrunning organizations and actors within the life cycle field increases the opportunities **to make an impact**.

Results also show that it is of high value being hosted and coordinated within a university. An academic environment

gives the center the possibility to be a trusted and neutral arena for collaboration and discussion.

The results from the survey show that it is difficult for one single player to follow and influence all emerging initiatives. We see this as one of the greatest potential and opportunity for the center to make a change with significant impact.

#### Board members and deputy board members

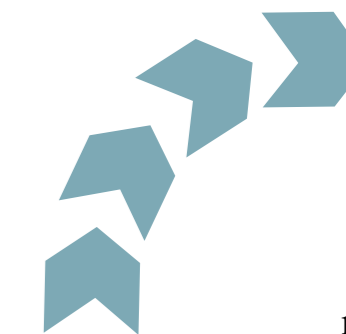
Chair:	Elisabet Olofsson
Secretary:	Lars-Gunnar Lindfors (adjunct)
ABB:	Lennart Swanström, Linnea Petersson
AkzoNobel:	Klas Hallberg, Karin Sanne
Chalmers:	Henrikke Bauman, Rickard Söderberg
ML:	Elin Eriksson, Lars-Gunnar Lindfors
KTH:	Anna Björklund, Björn Frostell
NCC:	Larissa Strömberg, Amanda Harlen
SCA:	Susan Iliefski Janols, Ellen Riise
SKF:	Martin Friis 2012-2014, Birger Löfgren, Stefano Marzola, Matilda Sjölin
SLU:	Serina Ahlgren, Johanna Spångberg
Swedish EPA:	Eva Ahlner 2012-2014, Emelie Aurell 2014-, Elisabeth Kock
SP:	Johanna Berlin, Katarina Lorentzon
Vattenfall:	Mikael Ekhangen, Sara Nilsson
Volvo Car Group:	Axel Edh, Birgitta Kinton Kåmark
Volvo Group:	Carin Ström, Lisbeth Dahllöf
Swedish Life Cycle Center:	Sara Palander (adjunct)

#### Preparatory board

Katarina Lorentzon, SP, Karin Sanne, AkzoNobel, Serina Ahlgren SLU, Elisabeth Olofsson, Anna Wikström and Sara Palander, Swedish Life Cycle Center.

*"The stage 7 has offered a great variety of seminars and meetings of relevance for SKF. It has also been a way for us to include others, who not working with sustainability or life cycle management in their daily work." Matilda Sjölin, Environmental specialist at SKF*

*"Stage 7 has been absolutely invaluable because we are in the start up process within the life cycle field. We have been helped to make progress, one example is the arrangement of the webinar about electrification of vehicles." Axel Edh, Senior Strategic Advisor Environment*



AkzoNobel 

ABB

SKF



VOLVO



CHALMERS



NCC 

@ivl  
SVENSKA  
MILJÖINSTITUTET



VATTENFALL 

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