

## SUMMARY OF THE FIRST LIVING LAB MEETING

October 27th, 2016, hosted by Garveriet – a sustainable development and construction initiative in Floda

*This is a summary of the discussions held during the meeting. A good addition to the presentations.*

### PARTICIPANTS:

Anders Nyqvist, EcoCycle Design (architects and more); Anette Sandén, Hifab (consultants in industrial symbiosis, partner in FISSAC); Annika Gram, CBI (Swedish Cement and Concrete research institute); Johan Felix, Chalmers Industriteknik (near-academia consultants); Johan Torén, SP (Swedish state-owned research institute, partner in FISSAC); Jonas Brandström, Garveriet Floda (local initiative for circular economy); Josefin Lassbo, Garveriet Floda; Julia Jonasson, SP; Kadri Koppel, Hifab; Karin Forsberg, Garveriet Floda; Kersti Karltorp, SP; Lena Larsson, Kynningsrud (Precast and foundations production); Lennart Larsson, Garveriet Floda; Lisa Apelman, Ronneby municipality; Marianne Hedberg, Swedish construction federation; Monica Brandström, Garveriet Floda; Mia Edofsson, Akademiska hus (large property owner); Pernilla Löfås, NCC (construction and property development company); Peter Carlsson, Hifab; Wolfram Oettel, CBI, Evelina Boija, Passivhuscentrum (competence centre on energy efficient buildings)

### Introductory presentation – what is Industrial Symbiosis and Circular Economy?

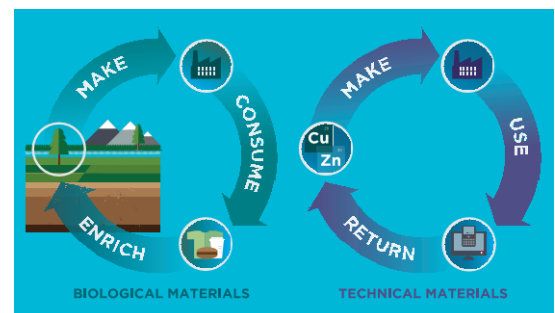
*In today's linear economy we use more than 1,5 times the planets annual resources.*

- About 70% of all waste is created before it reaches the consumer
- Up to 99 per cent of a building can by one way or another be reused
- In the EU only 20-30 per cent of waste is currently recycled and the construction industry is responsible for a third of the total waste produced in the EU.
- Circular Economy has the potential in Sweden to give 100 000 new jobs, raise the GDP by 3% and reduce CO2 emissions by 70%.

#### Linear Economy



#### Circular Economy



### An extract of reflections by the participants

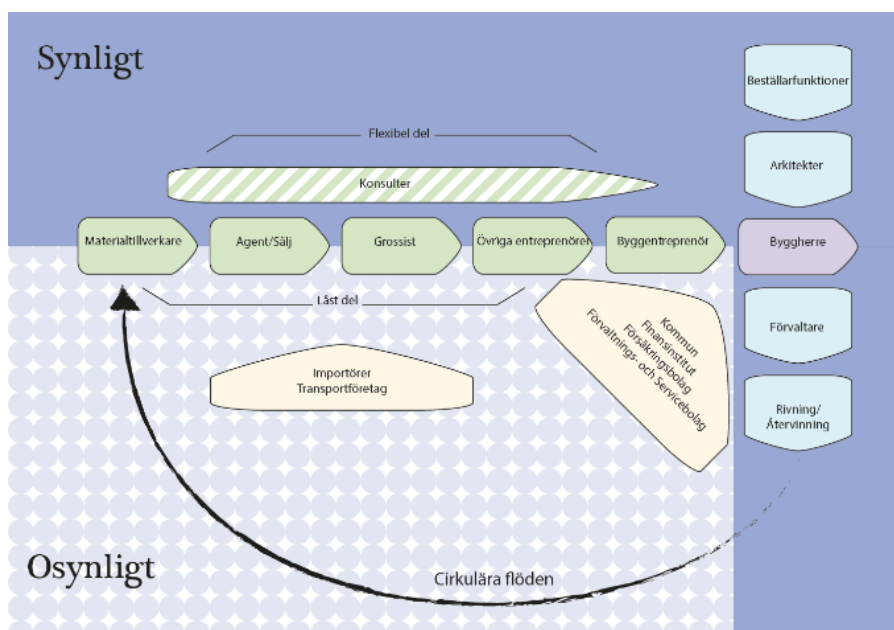
- Today's business students have the right mindset, but not today's CEOs.
- So far it hasn't been profitable in business to recycle and reuse resources, in the future it hopefully will be.
- We have now started to calculate and consider new types of costs in an organisation that previously have not been included. These costs fall on those responsible, so a new mindset is beginning to occur. Big companies however have nice policydocuments, but they are not practiced in reality.
- Interest in the topic of those that were invited to the first FISSAC Living lab meeting has been high, even if everyone couldn't join today. The invited actors will follow the process and join the discussions in the future.
- If we manage to make changes locally, we can reach a global market.
- We in Sweden have an opportunity to be the frontrunner.
- Circular Economy has to be clearly connected to business perspective

## Horizon 2020 - FISSAC – Fostering Industrial Symbiosis for a Sustainable Resource Intensive industry Across the Extended Construction Value Chain: a short presentation of the project

### FISSAC:

- Is developing a method and a software platform for exchange of information and to support the development of industrial symbiosis and circular material flow
- Will demonstrate and validate products such as green concrete, eco cement, ceramic tiles and rubber-wood-plastic composites made of recycled materials
- Replicability assessment and development through Living lab

### FISSAC Living Lab



*A lot of organizations need to work together in order to create circular material flow. In the Living lab process it is valuable that the actors present come from different organizations, but the challenge is to be heading in the same direction. Every actor is in possession of important information that could be shared. We will experiment with different solutions and see what works and what doesn't.*

### An extract of participants' reflections

- Question: Who is the "head" of a Living lab? How can one create the willingness to continuously co-operate and work together? Trust is important.
- Answer: The project runs living lab meetings during the following 2 years. The goal is that the network created shall continue running after the end of the project. It is important that everyone feels that we are here to learn, network and exchange experiences.
- Answer: Hopefully will you and your organisations be finding possibilities for business development, in which case the following will happen outside the project. The usefulness and possible benefits from participating, lies in you.
- In order to circulate materials, we need a new system of (material) documentation
- It is a benefit to bring together a broad constellation of actors both from public and private sector
- We have good intentions to co-operate, but the challenge is to find a suitable business model for executing these plans.

## Presentation round: reflection on interest and ongoing work with circular material flow

- Garveriet's vision is to become a center of sustainable development – a kind of living lab. To attract ecosystem-inspired business models, which will create more jobs and better businesses. It is important to understand the context and think preventively. What is it that creates a sustainable society? **Win-win is important** for making progress.
- NCC is working with a new sustainability framework, a part of it focuses on material use. The idea is to consider the demolition of the house from the very beginning of the construction. **But altering the building process is challenging.**
- CBI role in FISSAC and in sister EU project is developing the recycling of concrete. Waste products to new materials and **to new users. Looking for and developing a business case to make it work.**
- Chalmers Industrial Technology is working with Mistra's project "Closing the Loop". How do we work when we are planning operations in a construction or demolition site, for example with logistics? It is important to develop both **business models** as well as **payment-models**. For example: insurance companies have contracts with companies that reuse and set in place recycled moduls.
- SP is part of FISSAC to develop models of visualizing **systemic changes** and conversion processes. Can contribute with structuring all the shared knowledge that is to be found here among the participants. In addition, SP works with policy instruments both on local and regional level. Environmental and sustainability assessment of the tested recycled materials within FISSAC ( for example ceramic tiles and plastic composites).
- Swedish Construction Federation raises the importance of accurate inventory and promotes the use of a "logbook" for documenting the construction materials used. All the living lab participants are invited to give input to the updated version of the publication "Guidlines of Waste and Resource Management in Building and Demolition"
- Kynningsrud produces **prefab** concrete elements in Uddevalla. The company recycles its own leftover and waste materials in its production. **Today's standards** however don't allow to use so much residues, which is a challenge to work with.
- Akademiska hus is a big client - there is a lot of projects that are going to be built and a lot of existing real-estate that well be rebuilt. For a client developing a project, it is important to have the confidents that using innovative recycled materials is not going to somehow paralyse the project. Good examples are much needed.
- The municipality of Ronneby has circular ambitions. Yet it is difficult to get information on the history and consistents of the construction moduls and materials. The ambition is to think at the time of the construction how the blocks and the materials are set together and how can they one day be taken apart again. Material knowledge is important as well as registration of materials used during construction. **Reversibel building form and material passports.**
- **From word to action.** Architect Anders Nykvist works with Ecocycle design has been part of real-life circular buiding solutions from the scale of an off-grid castle in Holland to a family home built of reused materials, without having to lend a penny from a bank. Suggestion to the hosting organisation is to build **future housing** in Floda that shows how one can close the circle and build together with newly arrived immigrants – create a good example that can be evaluated and followed up in time. **Education** and spreading the word about everything that happens in the process is necessary. **The process itself** – how we work in construction sector, is important.

## Innovation starts with questions! A question formulation exercise

Point of departure of the exercise:

How can we work together to reduce barriers that today keep us from using more waste as resources?

### **Design questions developed by the Living lab participants:**

- How can we bring together the entire value chain to find the consensus to develop and improve the standards, laws and business models.
- How can we create meeting places for the entire value chain where the quality of the building materials receives unbiased evaluation and the users have adequate knowledge?

### **Challenges and propositions identified during the discussion**

- To find a business case, a functioning business model is a challenge. Good examples of realized projects in the construction industry, that will inspire and motivate other actors are much needed.
- There is a need of free information flow between the different actors of the value chain and a co-operation platform that will make it easier to find each other.
- There is lack of knowledge on the topic – clients must set higher demands
- In some cases companies consider co-operation as competition. That needs to change and instead discover the benefits of cooperation.
- It is important to include the industry's umbrella organisations in the living lab process in order to lay a strong foundation to the continued work. Co-operation between the public sector and businesses is also a part of the solution.
- Improved policy instruments, law requirements and taxes are needed to speed up the change process
- An identified problem with the existing standards based on the example of producing concrete: there is a will to blend in more recycled material in production, but the existing standards don't allow that.
- Suggestion: Fissac living labs should bring together actors that together will work on proposition to improve the legislation. The proposal should be accepted by all the actors involved.
- Suggestion: Boverket (The Swedish National Board of Housing, Planning and Development) shall establish a requirement of filling in the "logbook" (declaration of construction materials).