# **Newsletter 2**



While trees are dressing up with new leaves and flowers are blossoming to create beautiful weaves of color on the horizon, the students of the Circular Material Hub are entering their final stage of their Thesis Lab experience.

Spring is the time of growth. The students are experiencing growth, too. Healthy growth, with limits. ;)

To that end, the students of this Thesis Lab are researching the idea of creating a Circular Building Materials and (re)Manufacturing Hub to improve opportunities for circular construction in the region of South-Holland.

The last months were characterized by hard work and wonderful moments of sharing. In this newsletter, we would like to share some of the experiences we had with the thesis lab, and provide an update with how the students are doing at the moment.

## The Thesis Lab

This newsletter is the second in a series of three updates about the interdisciplinary thesis lab from the Leiden-Delft-Erasmus Centre for Sustainability. Together with the municipality of Leiden, municipality of Alphen aan den Rijn, Economic Development Board Alphen, Bouwend Nederland and the province of Zuid-Holland, we are joining forces to accelerate the transition towards a circular built environment.

The lab is structured around a main question that will be addressed by all partners and students involved: "What are the potentials and limitations of a Circular Building Hub?"

See newsletter 1 to meet the students working on this question!

Enjoy the read, Alex, Manon & Twan

# Integrated framework for a Circular Building Materials and (re)Manufacturing Hub

During a brainstorm with all the students, we identified several factors at play that either influence the creation of a Hub, or which are affected by a Hub. In the figure below, the identified factors are categorized into four different categorical levels: Networks & Governance, Materials & Energy Flows, (Physical) Infrastructure, and Socio-Economic Dynamics. The integrated framework shows the general focus and coverage of the student theses. The aim of the interdisciplinary thesis lab is to cover most the different aspects involved.

A distinction is made between factors that influence the (emergence of a) Hub, and the effects of a Hub on a system. This distinction came forward after a discussion where some of us felt like we were finding preliminary results assumes the emergence of a hub, its effects, and how to maintain this. Others were studying the process of how a Circular Building Hub could emerge. For example, the way that industries are operating in society is crucial in the emergence of a hub, which is also why we try and visit many important stakeholders in this regard. If Circular Building Materials and (re)Manufacturing Hubs would emerge in the Netherlands, this would have an enormous impact on the way relevant industries operate, hence the temporal distinction. This framework will take a central role in the presentation of all interdisciplinary results of our theses.



## Round-table discussion & Student's feedback

Students also had some round-table discussion and exchanged ideas and opinions about each other's research. Wenhui benefited from this moment and shared with us that she "Really appreciate the suggestions and comments from the last presentation session, I have revised my thesis topic with a more specific scope and objectives". Koert was inspired by other students and stated to our microphones that "with the input of the other students, I have tweaked the main research question".

Student's overall feedback about their experience with the Interdisciplinary thesis lab was so far very positive. Batuhan was extremely satisfied and grateful to the contribution that these networking activities have provided to his thesis. "With the help of the network of the LDE I was able to realize my data collection for the thesis. The LDE's extensive and diverse network has provided an interesting spectrum of perspectives on the circular economy". Karismi confirmed this perception and stated that "the thesis lab has been a very informative, new experience with a lot of eye-opening perspectives on the circular economy (in the built environment). I think it really adds an extra dimension and variety to the process of thesis-writing. After the presentation of my progress, I have gotten a lot of valuable feedback from my peers and the consortium members."

Similarly, Arjan stated that "Participating in the LDE Lab has been a very interesting experience up till now. Together we have had some interesting guest lectures [...] which added a practical point of view to the matter [...]". Alex shared their perception by stating that "The LDE helped me to connect with experts in the construction sector, but also to connect with extremely smart students interested in sustainability. Share out sessions, together with lectures provided by experts in the construction field, have helped me to gain a deeper understanding on the challenges that are hindering a quick transition towards circularity."

These sessions allowed students to start tackling and addressing the lab's research challenge: "What are the main challenges and opportunities for a circular building hub in Zuid Holland?" from different angles and perspectives. What is by now evident is the heterogeneous definition of a Circular Material Hub and its main functions. All stakeholders have different needs and challenges and, therefore, conceive the Circular Material Hub in different ways and forms.

Another important lesson is to realize that a hub is affected by and can affect different societal domains such as governance, flow of materials and energy, as well as exchange of information. This implies that a significant success factor for effective conceptualization and implementation of a circular material hub is to clearly understand the context-specific characteristics of the area in which it will operate. This includes an early involvement of the important stakeholders who will play a pivotal role in the Circular Material Hub as well as mapping the governance structure currently in place.

## Lecture by the Province of Zuid-Holland

It was also very interesting to have a dedicated lecture provided by the Province of Zuid Holland. In this lecture, the students learned what are the challenges associated with spatial development and the difficult decisions associated with determining where a material hub can and should be placed in terms of geographical area. Deciding where to develop a Circular Material Hub is not an easy task. It is extremely important to take into account the urban development throughout the country, its logistic infrastructure, as well as the current and future means of transport and the industrial developments envisioned.

## Lecture by Beelen

In another lecture, students had the amazing opportunity to learn how Beelen is making the demolition industry more sustainable and the technological solutions employed by the company for fulfilling their objectives. The company is a pioneer in the selective demolition practice. With some years of experience, Beelen has a specialized team able identify and cost-effectively to harvest materials that can be reutilized in new buildings. Additionally, the company has developed its own marketplace for selling construction elements that were harvested in demolition projects.

#### Visit to Rutte Groep concrete recycling plant



The students organised a bonus excursion to Rutte Groep to see how concrete for demolition sites is recycled into new concrete. Sven Hiskemuller van der Zijden gave a presentation about their operations, business model, the physics and chemistry of concrete crushing and recycling, followed by a tour in their recycling plant. It was impressive to see the scale of such a plant and the massive amounts of concrete that go into one single building.

We learned about the dynamics on a construction/demolition site, the challenges in circularity and scaling the business.Though recycling is one of the lower strategies on the Rladder, we have seen a good example of an ambitious company that has worked towards financial viability. Especially with raw material prices going up, we hope to see that more companies will follow!

#### Visit to Vlasman

The students had the chance to visit Vlasman's offices in Alphen aan de Rijn and learn their history, their core values and activities as well as their longterm sustainability goals. It was a very thrilling and exciting experience to share some insights with experts and to gain a deeper understanding on how demolition activities are been carried out in practice! cannot be done alone. Circularity Vlasman understands this very well and has, in this regard, started important partnerships aimed at recycling valuable materials from demolition sites. The main lesson learned: long-term sustainability is only possible if multiple players are involved in the process and if there is the willingness to question and change traditional and established processes by both sides.



#### What's next?

As we are entering the last stages of our research, we will engage in a higher level of collaboration where we try and sit with each other to share information and new insights to finalise our theses. Next to this, we still have in-depth lectures and a workshop on Science communication planned in the coming weeks.

Finally, on the 29th and 30th of June, we will have an intense two-day pressure cooker where the focus is on the combining of our research to find interdisciplinary results, as is set up with the integral framework presented in this newsletter. At the end of this pressure cooker, the knowledge gained during the program and the outcomes of the different theses will be synthesized to define potential new directions for further research and innovation

## **Missing links**

In all of our research, as in many, challenges do rise up in terms of data access and finding the right people to talk to. We strongly encourage you to share this newsletter with people who could be interested and would love for readers that are interested to get in touch with us if you have interesting insights to share for our research. Below you can find the email adress of each member of the team, colour coded similary to the model above, so you can see where everybody is working on and who to contact. Many thanks in advance!

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