

Do you want to bring your graduation research into practice, together with real stakeholders from cities?

We are looking for 20 - 30 motivated students from across the Leiden-Delft-Erasmus universities!

Interested in joining the Cities Hub Programme 2019/2020? Send your motivation letter (± 500 words) or your questions to hub coordinator [Tjerk Wobbes](mailto:Tjerk.Wobbes@inclusivity.nl):

[info@inclusivity.nl](mailto:info@inclusivity.nl)

Or look at:

[www.centre-for-sustainability.nl/the-cities-hub](http://www.centre-for-sustainability.nl/the-cities-hub)

Also, don't forget to write the date of our central kick-off event in Rotterdam - October 1st - in your agenda!

### Planning 2019-2020:

	Autumn semester		Spring semester	
	Q1	Q2	Q3	Q4
1				
2				
3				
4				
5				
6				

bi-weekly meetings per group

October 1st      December/January      May/June

Kick-off with all students and stakeholders      Research market with all students and stakeholders      Presentations with all students and stakeholders

## THE RESEARCH TOPICS

The LDE Cities Hub describes six topics regarding waste, each bringing together 4 - 6 students from different disciplines exchanging their findings. These research areas are based on the latest primary fields of interest of the bigger municipalities of The Netherlands.

### 1. Building innovations



With more and more people living in cities, the amount of high density housing increases. However, how we deal with waste within this new reality is still mostly unexplored. In what way can in-building waste collection be organized and facilitated, so that it promotes reduction and separation? Does it work via central collection spaces, and if so, can recycling already take place within a building?

Solutions can be design-driven, but equally well come from many other disciplines. How do we deal with, for example, the commitment of (a collective of) stakeholders regarding maintenance, legal enforcement, requirements for various types of locations, technical possibilities, and the associated costs?



### 2. Transport and collection

This problem statement focuses on reducing the pressure our current waste system and the transport movements it requires exerts on public space. A huge opportunity in optimizing this is to combine household waste, taken care of by the municipality, and industrial waste, collected by dozens of private parties - all driving their trucks across the city. Reinventing this system could even lead to better separation, especially in the latter category.

There are some successful examples to be explored, such as hiring bakfietsen to deliver waste in Utrecht, 'inverted collection' in Zwolle and an underground transport system in Arnhem.



### 3 Urban development management

When developing new urban projects, a waste system is chosen which determines at least the next 40 years. In which way can the right choices be made? How do we help developers and municipalities understand all risks and opportunities to make a healthy decision, spatially, financially and environmentally?

### 4 Turning waste into a resource



This topic holds the projects with the goal of making value out of waste, with a specific focus on organic waste. Constant innovation in (digital) fabrication techniques, materials, collecting and cleaning procedures, and product design make this an exciting field of study. Instead of individual products, don't forget to think about city-broad solutions. Can we make roads, bus stops or street lightning from waste? Can it generate energy? How about cleaning dirty water for re-use?



### 5 Role of residents

What are the factors determining individual's behaviour when it comes to waste separation, and what interventions could municipalities possibly apply to motivate its inhabitants? How can we approach this challenge positively, instead of with barriers or fines? What can people get out of this?

### 6 Reduction at the source



The average Dutchie opens seven packages a day, most made out of plastic and used only once. How conscious one can be, the world around us is simply full of soon-to-be-waste. This topic focuses on waste reduction at the source, by for example researching innovative packaging and product materials, or the multi-usage of a product prolonging its lifespan.



Bring your graduation project to a higher level by joining a cross-disciplinary group of students and stakeholders, *passionate about waste*



Universiteit Leiden



# THE LDE CITIES HUB

In our densifying cities, the way we deal with waste is no longer sufficient. In city districts, that become compact neighbourhoods with numerous high-rise residential buildings there is simply not enough space to maintain our current collection and transport systems. At the same time the course towards a fully circular and sustainable way of treating our materials is unavoidably set, which more and more translates itself in the ambitions of private and public parties alike. These, in short, are the dynamics in which innovative ideas and unexpected solutions can suddenly be the answer.

The LDE Cities Hub is a cross-disciplinary laboratory that distils challenges from practice and links the most current questions asked to graduation students from multiple faculties from the universities of Leiden, Delft and Rotterdam. In small research groups students get the opportunity to tackle real-world questions and bring their ideas into practice.

As a student in the hub you graduate from your own faculty and therefore organize your own team of tutors. The hub is an additional opportunity in which you can:

- work on real-world cases;
- meet with stakeholders from municipalities and access the network of private and public parties surrounding your case;
- work on the same topic as students with different studies, perspectives and research and design methods;
- exchange knowledge and data with all involved;
- present your findings to all stakeholders during our events;
- increase the chance of your ideas being implemented in the cities of our future.

Every two weeks the hub meets in the Groot Handelsgebouw in Rotterdam, next to Centraal Station.

Main stakeholders 2019-2020:



# AN OVERVIEW OF THE RESEARCH TOPICS

Together with the municipalities involved, the LDE Cities Hub will focus on six research topics:

