



**Reflection Paper**

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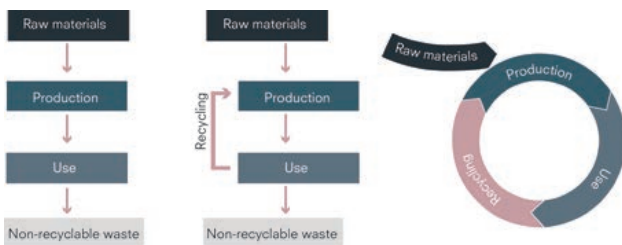
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## The relationship between research and design

As the methodology of the Complex Project studio is research-based designing, we are encouraged to explore and analyze the city from different perspectives at the beginning. In that case, we are not merely act a role of architect, we are also "researchers", "urban planners", "ecologists", "economists" and "sociologists". Personal interests come up with the understanding of the urban complexity and the analysis of technology developing.

My research topic is derived from both site analysis and broad research on the economic and social aspects of the Amsterdam Metropolitan City. Currently, our site, Haven-stad, is identified as an industrial area which is occupied with a number of factories and warehouses for waste collection and treatment. This characteristic became the starting point of my own fascination. The problems and issues I found during the research process create the proposal of my graduation design project. What will these factories look like when this area is transformed as a working-living space in 2050? Where should they be located and how does the waste treatment system operate with a high-dense surrounding? More problems emerged during a deeper research on the whole city and larger scale. With the population exploding and urban expansion, more than ten thousand people immigrate to Amsterdam every year. Resources and raw materials will be in highly demand and a larger amount of waste will be generated. However, the land for waste treatment will become less and less. I aim to strengthen the understanding of what is known and not known about the role of waste management in the development of the Circular Economy, looking to find out a new economic model to improve the value of used materials and trying to embed the waste industry into a vivid urban fabric. After research and analysis, a concept of upcycling center for used materials could be a solution for these problems according to the hierarchy of waste treatment.



The research result of new technology for waste management in the future plan from municipal administration provides a potential link between waste industry and public urban life. A new typology of architecture could be proposed to

combine public activities with waste treatment because of the automatic transporting system. So, it could be concluded that the results of research not only lead to the proposal of graduation design project but also provided the rationality to the graduation design project which is facing the future challenges.



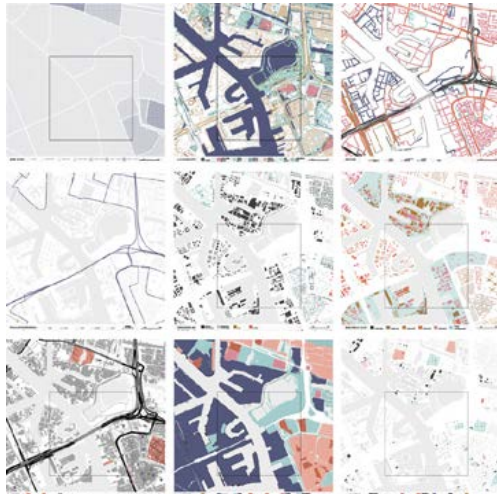
## The relationship between the graduation topic, the studio topic and the MSc. Architecture programme

The Complex Projects studio is working on investigating the role and challenges Amsterdam will be facing in the coming decades, towards 2050. We work together as five groups to develop different urban scenarios based on the future technological developments or urban innovations in the field of mobility, energy resources and health facilities. Our group also started with the question: What kind of City do we want? According to the understanding of Haven-stad area and the future plan from municipal administration, we regard "water" as the most important element on our site. Together with the large area covered by natural landscape and mono-functional area of industry, the scenario of Zaanstad group is related to the key words: "efficiency", "ecology", "resources" and "leisure time with water". My graduation topic, waste management, also has a quite close relationship with these key words. As waste management is the heart of circular economy, it is an unavoidable topic when we talk about a sustainable future.

## The chosen method and approach in relation to the graduation studio methodical line of inquiry

As Complex Projects studio is working on a situation facing Amsterdam 2050, it requires a long-term vision and logical imagine based on a sufficient understanding on the historical development and cultural contexts of the city. In order to figure out the history, current problem and developing trends, I need to collect a great amount of archives and statistical data through researching

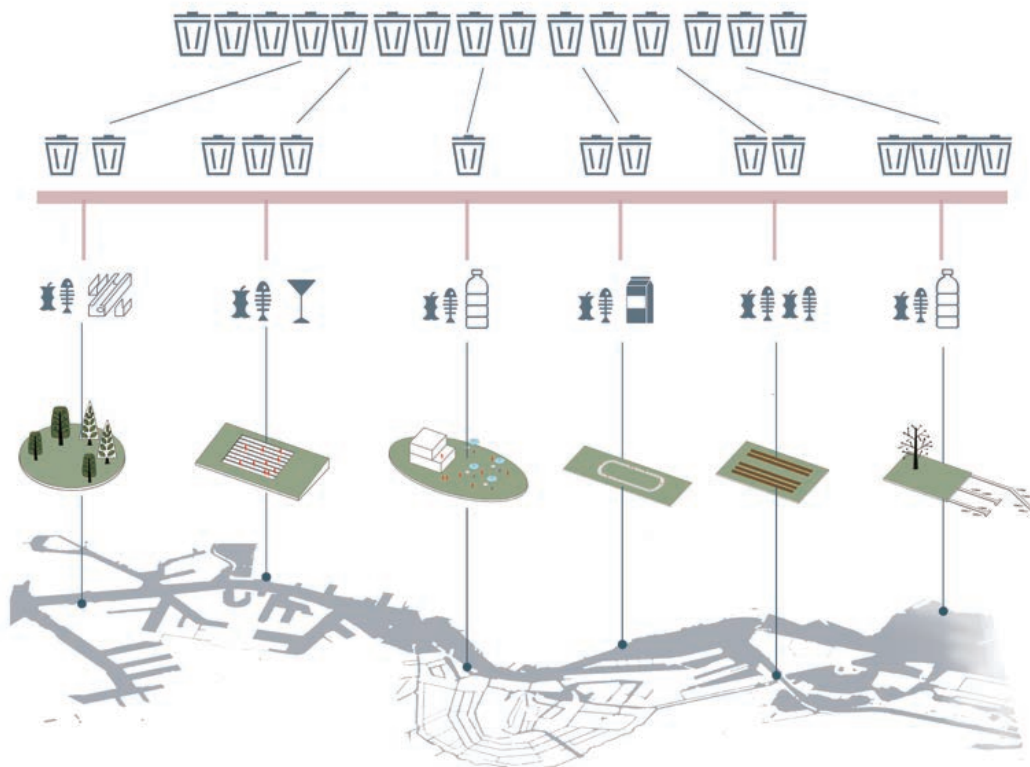
geographic maps, government policies, annual reports and future development plans. By collecting hard data from different aspects and site visiting with my group members, it is easy to find out the problems and potentials on our site. The disconnection and mono-function are the main problems. Meanwhile, a large amount of water and natural resources are not used in a good way. These findings became the starting point for our group.



while the human population keeps on growing. Our appetite for raw materials is increasing rapidly, while available resources keep on falling. The government of the Netherlands has a goal to achieve circular economy by 2050, which requires more public participation to the environmentally friendly works. Not only the Netherlands, but also other countries all over the world should make efforts to make a sustainable future. Waste as the heart of circular economy, should be concerned carefully. I am trying the address the challenge of resources in my Graduation project. An architectural project is difficult to solve an urban issue. However, architects are able to stimulate people's behavior and activities by the by their designs. My graduation project is a decentralized waste upcycling system which is located along the IJ River. In this project, waste will be regarded as precious materials, and they will be treated in a community scale. Local people are encouraged to reuse and design their material by themselves under the help of art design companies and make a profit from these recycled products. In this way, people can participate in the waste recycling process and get benefits from it so that people's awareness of recycling will be raised. On the other hand, the composting product of organic waste is a good soil improver. The waste upcycling center not only can act as a stomach for waste digestion and a showcase for recycling, but also can provide green spaces for citizens spending their leisure time on the IJ River. The water spaces in Amsterdam are refreshed and are redefined by these "green composting islands".

**The relationship between the graduation project and the wider social, professional and scientific framework**

In 2050, the human population will exceed nine billion. There are limits to the capacity of the earth,



## **The ethical issues and dilemmas encountered in doing the research, and the potential applications of the results in practice**

At the beginning of the research process, I indeed encountered a number of dilemmas. Of course, waste is an urgent issue that should be concerned by the whole human beings. But waste problem is quite different for the countries which are in different developing process. When most waste is burned and land filled in China nowadays, more than half of the waste are collected and recycled separately in developed countries. Inhabitants have already acknowledged how to sort their waste in different bins. However, as a Chinese student, it is not easy to consider "waste issue" in a long-term version in European situations, especially the Netherlands who runs in front of most European countries. Sorting and recycling are still new topics in most Chinese cities. To some extent, we can predict that on waste management field, the European today is China's near future.

When I embed myself in Dutch background, I

start to think the problem further. Unlike cultural buildings and entertainment buildings which are designed to improve the quality of human's daily life, waste industry should be considered as a kind of infrastructure to solve the basic requirements for materials. Therefore, waste handling buildings are supposed to immerge to the who city, instead of being alienated from the society. Although, waste collection bins in different colors are located in the city everywhere at present, it is still not a good place for people to stay and spend their time. The design program "waste upcycling center" shorten the distance between human and waste industry. It is not only an infrastructure in the city, but also acts as a "luxury" architecture to improve the living quality.

During this year, I indeed feel the responsibility for the society on the architects' shoulder. Architecture design is not only an assignment to organize the space and circulation in the building, but the benefits your program generates for the whole society and human being. And I also learned that never forget where I start and never lost my initial ideas during the long designing process.