The relationship between research and design

The research started off with my fascination for closing life-cycle design. By researching local different kinds of flows in my site, I found that flows in my site is quite unique and special. I came upon an idea to design a factory to reuse local flows realizing closing life-cycle purpose. The research itself was quite broad and followed three paths: the first path was figuring out how local flows of my site look like and calculating data of each flow. The second path is logically connected to the first path and was about technical research. By researching different kinds of potential techniques, the purpose is to find out which one or which two are the most suitable way to close life-cycle in my site. Thirdly, integrating two paths by finding a way to close local life-cycle and at the same time establishing a new closed and promising flows in my site. At the P2 the idea was to find an appropriate way to realize closing life-cycle purpose and work out a basic requirement for my project such as how much area does my project need? Ultimately a synergetic system had been developed which combines algae production factory, greenhouse and bio-digester together. In this design, algae factory can provide enough energy for my site and byproducts will be used for other purpose. Greenhouse can provide food for local area. Bio-digester can convert local waste into energy. After calculations, I found if my project can meet the requirements below, then local stream flows can be totally closed and I’m quite happy with that.

(Basic requirements of my projects)

The relationship between the graduation studio and the subject chosen by the student within this framework

In the studio three ‘themes’ are defined (Make, Flow, Stock) and several locations are suggested. My fascination was focused on ‘Flow’ from beginning to end and my location was in the whole IBA area. As I started researching, I gradually limited my site only in the west of Kerkrade which has several different utilities. Looking back now I feel that my research is exactly on the right direction. It is mainly about energy flow and food flow on the site. At the same time I also paid attention to local waste flow which can make research more interesting. How to create a closed loop with no waste running on the site is my research topic. The topic itself is not a conventional one and I think I have no chance to try this new topic in other studios except AE studio which by definition seems to be quite broad.

The relationship between the methodical line of approach of the graduation lab and the method chosen by the student in this framework
Due to my own fascination is flow but I don't know the results of my research at the beginning which will definitely influence my next step. So I only distilled only a part of methodical line of approach of AE studio and I also worked out my own research method as a whole. My research method was quite logical. Each step was based on the analysis of previous step. At the P1 I had a method which can conduct me for the following research, but I really didn't know what the result would be like. It is quite challenging and interesting. My tutors and I were both quite curious about my final results.
I’m happy to say now that the result is quite satisfied because it is possible to close local life-cycle on my site. I’m also on track for my design which is similar to a park. In the park I have algae factory, greenhouse, bio-digester, waste water treatment plant and a museum to show high techniques and local history. My project ends up with a surprise which I never expected before.

The relationship between the project and the wider social context

All my research and design at the beginning of the graduation studio was based on the background of IBA Parkstad area. Try to activate this area, solve shrinking problem and remain local mine history are premises of our graduation group. I’m not only interested in life-cycle loop but also interested in renovating vacant public facilities in an architectural way. In the architecture itself I tried to respect local environment, tried not to disturb existing system, tried to let people enjoy beautiful nature. So finally I attached my project into waste water treatment plant area that half of it is not in use now. I think the project itself can be seen as a vision, a conceptual design of how to implement algae as a large-scale way producing energy to deal with energy shortage in the world. Algae is very potential renewable energy. Even though the technology is still under developed, but we should still design something to push it to the next level, at least it has a chance to be built. Otherwise it will never be built.