

Reflection paper

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Introduction

The reason I wanted to do my graduation at the Architectural Engineering studio came from my past involvement in Amsterdam. Before my master, I studied civil engineering. My end goal being; to become an architect with the background knowledge of a structural engineer. Innovating design starts with a good understanding of the building materials and building techniques that are available in the surrounding area. At the Architectural Engineering studio, they lay the focus on sustainable technical solutions with a societal approach. Designing starts from the surroundings, the environment, the social and political structure and the needs for developing.

My passion for architecture grows when I can involve and improve the wellbeing of the community and its resources into a design proposal. Semarang, Indonesia, located on the north coast of the island Java deals with several problems related to fast urbanisation, a high unemployment rate and land subsidence. Solutions are required for these problems especially since the damage caused by floods affects the culture and citizens in the coastal area of the city. Gradually these flooding problems will only become worse due to the rising temperatures caused by climate change and the need for freshwater in Semarang.

The relationship between research, strategy and design

Developing a design concept for a country outside of my context means getting to know a different culture and traditions. Therefore, I had to shift the perception and used to approaches of building methods, principles and materials used for the project design. The research started with the historical background of the area. To understand the reasons on how a city is developed over the years, history has an essential aspect of the general understanding of the people, surroundings and their daily lives habits. However, the excursion to Semarang had a strong influence on my perception of the city and the direction of my research. The idea of my thematic research topic started during the site visit in Semarang, Indonesia. I knew before going to Semarang that I wanted to improve the work environment of the community. Through studying the actors in the city centre, it became to my understanding that the food industry took a huge role in the history and the current urban layout of Semarang. Every part of the city has a link to food, and an Indonesian meal incorporates references of Chinese, Javanese and Dutch culture. Food in Semarang is the connection between the different kampungs and cultures that the city is by defined. I knew that making this industry the main topic of my design proposal it can increase the social qualities and connections in the city landscape. To make the proposal interacting with the community, I wanted to know which food industry was local to Semarang. Seeing how the

smoked fish industry has such a large part of the economic infrastructure of Semarang, my interest increased to integrate this topic in my thematic research. My goal formed to create an enclosed cycle fish production to provide a new form of farming to improve the current fish cycle in Semarang.

With the integration of local farm products, the community provide a profit and has an environmental upgrade of the surrounding kampung. By incorporating social-economic features in an environmentally sustainable way, the park connects a new living opportunity for the residents of the surrounding kampung and provide a new public space for diverse actors of the city. Not only did the research indicate the first intentions of the graduation project but also had a significant impact on the spatial qualities of the design.

After the thematic research, I shift my focus to the materials and strategies part of the design. This followed in the second research focusing on the building technology aspect in a tropical climate environment. The social hierarchy in Semarang is a bottom-up approach, showcase in individual corporations throughout the city landscape. For example, the smoked fish industry hub is not one distribution centre. The industry is built up from individual huts alongside the riverbank. They are in control of their own business model, which concludes, that the concept for my design should come from low tech possibilities with a flexible approach on the spatial layout. The area is facing a lot of environmental problems, what makes living alongside the coastline unpredictable. To create new and alternative solutions, I needed to know the extremes of these conditions to determent which materials would suit best to the strategy and the concept of the design.

The relation between the graduation lab theme and the location/object

What is fascinated with Architectural Engineering is that the studio is dealing with current realistic society problems. Currently, water is one of the main topics in the future of urbanism and architecture. With the climate change and growth of the world population, issues such as floods, freshwater scarcity and rapid urbanisation are increasing. Semarang city is a project location that tics all these boxes in one place. The city is an interesting area to invent design concepts to tackle urban problems related to water. Note that the area is totally different from the Netherlands in terms of context, culture, livelihood and climate. It is important that the design would be affordable and easy to build by the community. Therefore, this required sustainable solutions on materials and techniques which are stimulated by the design strategies of the graduation lab of Architectural Engineering.

The relation between the methodical line of approach towards the graduation lab with the project

In the literature study, it was important to orientate on a specific topic of the city. Choosing the right methodology was crucial not to get overwhelmed with all the data and layers of the city, to eventually develop a substantiating research question. To focus on the economic factories during the trip, and the involving actors, it provided orientation during the trip. By making mapping observations of the surrounding area and the actors daily habits, I was able to define the theme of the project, including the program and the materialisation of the design.

In the graduation lab of Architectural Engineering, the themes are divided into make, flow and stock. The project includes a material flow diagram of the fish industry of Semarang, which deals with the circularity of food production and clean water. By the integration of the fish farm, the loop can be closed with the programmatic in- and outputs in terms of water, food and waste. The project stimulates social-economic possibilities for the residents and reduces waste and pollution on a larger city scale.

With regards to make, the project stimulates the traditional low tech way of building. What encounters the local building language that has social-economic advantages with a tropical climate approach that contradicts the influence of the past colonial urban layout. The building techniques have an adaptable approach to the connections joints, in terms of floating principles and lightweight natural materials. This makes the strategy flexible and prepared for unpredictable conditions.

the issues and dilemmas

ethical

The project location in Semarang reflects a very different culture and building traditions than I have experience in western architecture. Additionally, the location used to be a Dutch colony, which influences my results of the design and research in a sensitive approach towards the architecture, that could not be misinterpreted in a negative way. Not only to understand my position as an architect, this project educated me the political spectrum of the past, but also reflect the input that my project could have on the culture and the urban environment. Listening to the demands of the local community and their needs in the area, a direct impact can be developed between an architect and a community from diverse cultural backgrounds. I consistently questioned my position to fully understand the logic behind my design choices in an attempt to let the existing culture arise in the design instead of applying western learned approaches to the Indonesian context.

context

The project is extreme in several problematic themes, such as land subsidence, floods, sea-level rise, freshwater scarcity, and overpopulation. A mix of these problems results in fast urbanisation that includes informal settlements with poor bad conditions. The design principle has to be realistic that provide low-cost solutions. It was necessary for me to understand that it was better that sometimes having low tech simple solutions will increase the quality of the design concept based on the local environment and conditions.