

Reflection

A Cluster Scale Decentralized Water Management System

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My entire project study consists of two parts in two semesters, one is research and the other is design. The water environment in Flow is my part of interest. So In the first semester, I tried to find a solution to the water challenge through the research of Sint Maarten water condition. The design is to find the materialization of this approach, which is the decentralized water management system, the organization of spaces and the way to construct. These two parts are closely related and are a gradual derivation process.

Aspect 1. The relationship between research and design.

My research started with an understanding of basic water condition to find out what the problems are in Sint Maarten . Through reading and site visits, I collected information about water supply sources, water consumption amount, water pollution degree, and existing water infrastructure. Those information helped me draw local current water flow. I found that the main problems were the lack of rainwater harvesting and there was no grey water recycle and reuse. This had greatly affected local water use efficiency and exacerbated the situation of oversupply of fresh water.

So I selected three different case studies, and all of them had provided some practical references for grey water purification and rainwater harvesting. Then I listed the water facilities used in each case and researched to their working process. On this basis, I chose five facilities suitable for the site and connected them to each house in a cluster unit to form a new and improved water flow.

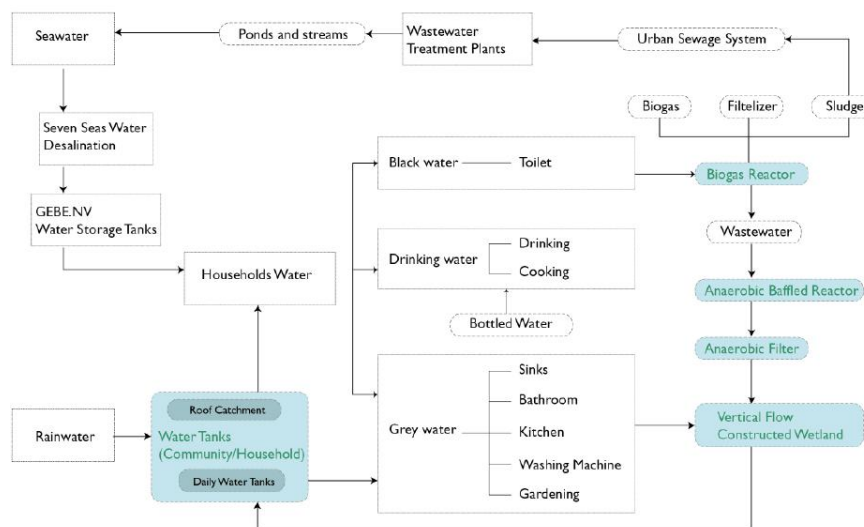


Fig.1 The new improved water flow

The design process was started with ambition. The goal was to make the water system improve the quality of the community in four aspects: water, ecology, production, and public-living. I gave different spatial functions to these five different devices, so that they formed a volume. The spatial relationship of these water facilities also affects the relationship between building space and function to a certain extent. These volumes are connected by long corridors, and different types of landscapes are added at the end. So the water infrastructure, building structure(volumes) and landscape these three elements make up my design.

Aspect 2. The relationship between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc

AUBS).

In the face of severe hurricane issues, the water environment that Sint Maarten needs to pay attention to is also very complicated. The hurricane caused a lot of infrastructure damage, and the huge water consumption of residents forced the government to find more solutions. As one of the basic research aspects of aE studio, Flow is related to the integration and utilization of resources, energy conservation and renewables. Through research I hope to find a suitable way to close the water loop, improve water quality and save water resource. This brought great guidance to my research.

Aspect 3. Elaboration on research method and approach chosen by the student in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work.

Scientific research is based on a large amount of objective data and facts. Therefore, in the face of this brand new venue, the eight members of our group first conducted detailed information inspection on this island, and introduced Sint Maarten in terms of economy, nature, social and so on. For my personal water environment research, some students in the studio already have some research content. I read their research paper and presentation carefully, which helped me to find direction to collect data at the site. Since there is not many information online about the island, much of the data can only be speculated through the interviews. So I conducted a lot of interviews with residents in different communities and government officials, which is also an important part of scientific research.

Scientificity is also reflected in practicality. Although this is a theoretical design, I still make this design more suitable for practical solutions through scientific research. For example to think can the residents really use this low-tech construction method. I also think the relationship between water systems and individual stakeholders. What benefits can this system bring to them? They are responsible for which part of the project, who will fund it, how to operate, and other practical issues.

Aspect 4. Elaboration on the relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results.

Architecture is a comprehensive combination. It is not only the design itself, but also refer to the ecological, social environment, and economic factors. This is one of the reasons why I started designing with four ambitions. If the intervention of a building does not have any impact on the social environment aspect, it must not be a successful solution. Of course, the plan itself also focuses on waste public spaces. People have no place to meet and talk, but the lack of management of the existing public space leads to the loss of value, which is itself a conflict and contradiction. Therefore, while the building itself solves the water problem, it also gives the existing waste greenland some specific functions. Thus they have become more valuable through the reintegration of green spaces. The economic considerations include how to make buildings cheaper and how the system itself can generate revenue.