Reflections: A seed for the future (studio Westfort 2015-2016)

The relationship between research and design:
For my research I looked at a way to value sustainability in heritage project. My question was as followed: To what extend can a life cycle assessment be used to value heritage sites that will be renovated to a sustainable center, and where does a LCA has it shortcomings?

The research was more focused on the Life cycle assessment and finding out how this assessment used for measuring sustainability can be combined with a value assessment to get a more integrated assessment when dealing with heritage. The life cycle assessment count four phases, the first phases is to determine a goal and boundaries for the research, in this phase you make a first hypothese so you can focus the research better. The second and third phase is where the assessment is done with a broad analysis of material flows and an impact assessment on the environment. The last phases is the interpretation phase and is used all the time to reflect, interpret and to get conclusions.

When looking to the life cycle assessment it is a methodology that only uses numerical input and outputs to define the value for sustainability. This is the main shortcoming when valuing heritage sides such as Westfort where some of the values can’t be expressed in a number. The numerical approach can be of great use when you want to define how sustainable the design solutions are made in the project. It is an advanced method to find the right balance of energy efficiency measurements and design esthetics. The shortcomings in this methodology are that it does not take the values of a historical building into account.

The most important things that can be changed in the life cycle assessment are the scope boundaries in the first phase. Creating a clear check list what has to be remained, restorated or changed can create a more narrowed down scope of options that can be researched. This can be done by combining a value assessment method with the life cycle assessment. The designer first have to make a clear and detailed value assessment, especially on building and detail level a clear conclusion has to be made and which parts of the design give possibility to change.

Within sustainability, the reuse of existing and historical buildings is encouraged. When we study the results from the case study we showed that reusing a building instead of building a new one is the most sustainable way. The problem erases when dealing with historical buildings and the values addressed to them. A balance has to be found between the resilience and possibility for change of these buildings. Dealing with these assignments the question raises on the way these buildings can be reinvented and transformed to have a new function for the future without losing its original values.

In the case of Westfort we can say that upgrading the urban context and architecture is the best way to approach this side. Demolishing the buildings and built new low cost buildings, like in the surrounding neighborhoods, will lose the special and valuable urban setup that Westfort has. Next to that building new houses will have a larger impact on the ecological environment then reusing the existing buildings. As proven in the Case study, newly built buildings do not perform better then reusing the buildings. When upgrading Westfort the materialization should be taken into account. Creating a bigger footprint and the materials itself has the biggest impact on the ecological environment. One who is already threatened in Westfort.
When looking back at the research done and usefulness to my design I can say the following. The research was a more theoretical understanding how research in general and assessments in sustainability is done. When starting with the studio I didn’t knew allot of the life cycle assessment and how it is implementend in the built environment. For my design it did not had the impact I hoped for. The most common step that could be done after the research is to make a life cycle assessment of my design, this only takes allot of time and resources to do so, something that was not planned. Looking at the conclusions it helped me to understand how a design disson has an impact on the environment. Only in a materialistic way this can be found back in my design itself. The research did make me understand what the shortcomings are of the LCA when dealing with a heritage side and how hard it is to combine both assessments to a new combined assessment.

The relationship between the theme of the graduation lab and the subject/case study chosen by the student within this framework (location/object):
The main theme and approach of the studio was stated as followed:
This studio aims to realize two ambitious goals. It will develop deep insight into the origins, history, contemporary situation and actual problems of both the site and Shared South African Dutch heritage. Subsequently we will work on the design of innovative interventions that can offer the Village opportunities for a sustainable future through an engagement with its current socials condition. This will be done for a specific project location in the village and in more generic ways through strategies for community centered development, be this through one off or incremental interventions. And the main theme: exploring the tolerance for change.

For this I first valued the architecture, social community, landscape and history of Westfort. When looking at Westfort there are four values that really capture the uniqueness of Westfort, the Aesthetic, Historical, Social and Cultural values are very high in Westfort. The Age value is definitely present in Westfort in the form of decline. In my opinion this value is the least valuable in Westfort because the decline is going so fast that some of the architecture will be lost soon. The Historical value in Westfort is high because of a few reasons. Firstly the remaining scars of the Apartheid in South Africa that can be found in the remaining of the walls. Segregation of races was in the roots of the Westfort urban planning where clusters have been made to separate different genders and races. These remainders of urban planning and walls have a historical value. Secondly the use of Westfort as the only remaining active leprosy colony makes it unique and historically valuable. The Social and cultural values are also present in Westfort. The way of urban planning with clusters and open areas encourage the people to have social interaction with each other. Where Westfort was a place to go to and never leave again, social interaction between residents was important. Every person visiting Westfort nowadays has a special feeling of the place. Where the decline of Westfort is present and can be seen, the place still has some kind of romantic and beautiful feeling.

The urban context of Westfort can be characterized in three components: clusters (living areas of the former leprosy patients), the open areas, and the service buildings (the pavilions in Westfort). For my plot area of my design I chose for a spot where all these three elements can be found. In this matter I can work on a part of Westfort and use that same approach for the wider scheme of Westfort.

The design process was a cyclistic process where design, analyzing, valuing and sustainability were alternated on different scales. By reflecting on the decisions made, the place of the interventions and scale of them got optimized.
The relationship between the project and the wider social context:
When looking at my project and how it can contribute to a wider social context there are three parts of my design that I want to address: the greenhouses combined with a heritage side, creating a local economy and how sustainability measurements and water management can be contribute to a sustainable living environment in South Africa.

My design addresses a upcoming problem in Africa, food and water shortage. These issue are getting more pressing in the upcoming 30 years and looking for a possible solution is needed to deal with it. In my design I tried to build a modern greenhouse system, using the local potentials of the landscape and context of Westfort. This system can produce the annual demand of vegetables and fish for a person a year. The system allows the people to grow their own food in a sustainable and efficient way, use waste streams to produce energy and get a constant flow of food and fish out of the greenhouses. The greenhouses also create a local economy where people can get jobs to work in the greenhouses and where overproduction of food can create a long term solution for Westfort where people value the place they are living in and can sustain the houses.

Water is a second problem in Africa, the district of Pretoria get an annual rainfall each year of 650 mm. This is compared with the Netherlands allot less, but particularly the way rain is falling over the year is differently. During the winter there is almost no rainfall where during the summer the rainfall will happen in short periods of extreme storms. The rain that can be collected and stored in tanks is enough to produce up to 3 times the annual food needs of a inhabitant of Westfort. Making the system extremely use full to produce food on a larger scale all over South Africa.