

Reflection paper

Graduation Project

Community centre in Informal settlement Zandspruit, Johannesburg, South Africa



MSc Architecture, Urbanism & Building Sciences

Architectural Engineering Graduation Studio

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The graduation project & my personal interest

My graduation project focuses on an informal settlement in the outskirts of Johannesburg, South Africa. During the MSc 3, the first half of my graduation track, the focus was on redesigning the housing area. This included a phased planning with housing improvements and the creation of communal areas. As this was already an interesting topic and challenge, during the summer holiday a new opportunity arose. During my trip to South Africa I was offered the chance to collaborate with a pastor working in the settlement. He had multiple ideas about developing certain functions in the settlement on a plot he just purchased, and asked me to help him with the design aspect of it. Although the housing situation was an interesting topic to focus on, working on it gave me a feeling of desperation. A feeling that only grew once I visited the settlement again in July. The housing problem is huge, with a lot of factors playing their own role in the issue, that tackling the problem on my own would be an impossible task. But this new design project would focus on only one plot in the settlement. This made the challenge, despite still difficult, a bit easier to tackle. The higher chance of success and actually making a change in the lives of the community motivated me a lot to continue with my graduation studio.

The graduation project focuses on the upliftment of the community by presenting a place where they can develop themselves and work towards a brighter future. The community and the centre working together would be the ideal picture. The centre offers a lot of different activities or functions, of which most are public. But even a women shelter can be found here. The community members will visit the centre and make use of these facilities. The output towards the settlement, and maybe even broader, can be found in a lot of different areas. For instance the inhabitants can develop new skills, giving them a bigger chance on the job market, students get a peaceful place to study, improving the chance of them receiving a degree and finding a job. But also giving the inhabitants the tools to create materials to improve their own houses.



Left: photo of the plot



Right: photo of the houses located next to the plot

This graduation project was not part of the context the AE studio presented. It actually started with an interest of my own after visiting the settlement for the first time in 2018. I was interested in the completely different context, the culture, the living standards. And most of all, in what I could contribute to the lives of the people living in this community. For years I have been interested in working in/for/with developing countries. As the visit of this community made such a big impact on

me, I decided to focus my graduation project on the upliftment of the settlement. To say, the project serves two goals. One is the creation of a building that help with the upliftment of the people in the settlement, the second is to find out for myself what it means to design for a different culture and a different climate. To find out if I want to develop myself as an architect that focuses on projects in developing countries.

Aspect 1: The relationship between research and design

The relationship between research and design can be found in different phases of my graduation project. First of all in my research paper, where I used the research by design methodology. This methodology desired a hands on approach, where I made a lot of models myself as research. I had never before approached research in this way, but I appreciated it very much. It helped me to think outside the box and focus on using the materials and tools available in the settlement. The outcome of the research will be used in the construction phase of the building, but the improvements itself can also be taught at the skills centre, which is part of the program that can be found at the community centre.

Besides my research paper, I read a lot of information about migration and the problems that are present in settlements. This helped me formulate my concept about social sustainability. This research made me realize that I could approach my graduation project as something that exceeds the boundaries of the plot, and could be applied in more than one location.

The reason I conducted research on the occurring problems in settlements was because I wanted to know what functions would be needed in the centre, but it most of all felt like a way of validating the program of requirements I received from the client. To develop a valid and respectable design challenge, I felt the choice for certain functions needed to be backed up with valid research outcomes as to why these functions were really needed.

Furthermore a lot of small research into different topics has been done. I approached these small researches by first collecting the information, and then see what the influence of it would be on the design. I considered these influences by looking at the practicality, the costs and the conflicts it might create with other topics. These choices could lead to doing more research, making the switch from research to design go back and forth. During the last phase of the project the focus has mainly been on the design part.

Aspect 2: The relationship between graduation topic, studio topic, master track, and master program

I believe the relationship between my graduation project, the studio topic, the master track and the master program can be found in the focus on innovation and sustainability.

The innovation part of my graduation project shows best in my research paper. During this research I created a paper pulp, that could be applied in multiple ways to improve the shack houses. The plan is that this paper pulp will also be used during the construction, for instance to create a glass bottle wall or insulation sheets.

The sustainability focus can be found mainly in the climatic design. As there is no electricity grid and a lot of money present at the location, the choice for passive principles was easy to make. The design is influenced by these principles, for instance how the roof is shaped and where the different functions are located on the plot.

Another big part of my sustainability focus is the circularity of materials. This particular focus shows the relationship between my graduation project and the studio topic. Although I chose my own context, I stayed within the focus of the studio the Architectural Engineering track offered.

The owner of the plot already started collecting different types of materials which he received or bought second hand, coming from a demolition site. For my research paper I already focused on the potential of waste materials for the improvement of shack houses, and I decided to also use this focus point for my design. In the end a big part of the materials used will be circular, for which I created a concept that handles the differences in variety of materials sizes and shapes.

Aspect 3: Relationship between approach studio and that of student

The way I approached this project is a lot different than what I was used to with all my previous projects. The biggest difference between all these projects is that this time I was working on a location that I have visited, in a different context, with a real client, and a possibility of the design being actually built. I had to find a way between the assignment I received from the client and formulating my own graduation project, with a real academic foundation. What I struggled with the most during this last semester was finding the balance between the practical side of the building and creating architectural value. This in combination with my ability to focus on finding problems and trying to solve them, made me tone down the architectural design from the beginning. This resulted in chaotic drawings in which I could find no unity. At first I was so focused on the construction method, the local knowledge and the climate concept that I didn't really care about the architectural value. In my mind, the fact that there would be a building that will help those people in their daily lives, was more important than the way it would look. Towards the end I managed to create a concept for the building process and the facade design. Architectural value is added, but it gives freedom in the usage of materials.

Where I usually focused more on the esthetical side of designing and the practical things like construction and climate became second, this time I switched it around. This was a very interesting process for me, and the tutoring was needed to keep me in track of combining these two aspects so that they could work together and add extra value to the design.

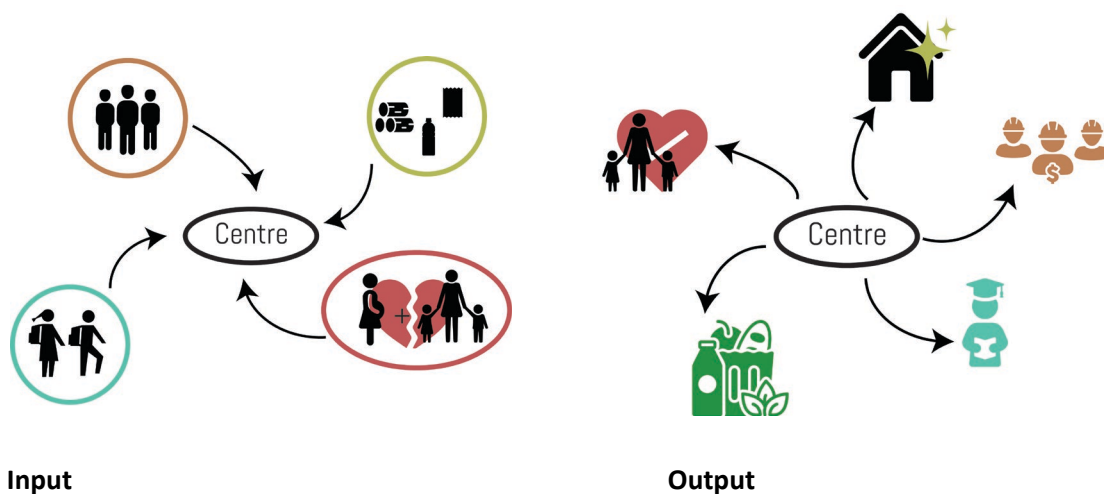
Besides the above discussed relationship, I also would like to mention the approach of the design as an integral design process. And how I applied this approach for the first time. In the beginning this proved to be difficult, but along the way it became easier. At first I collected a lot of information from different aspects, which I tried to implement into the design at the same time. The bundle of information proved to be too big, causing me to lose any order. I thought everything was of the same importance, making it impossible to make choices. After this I decided to focus on each aspect individually, and formulate starting points. These starting points would be placed next to each other, and choices for the design with regard to these aspects were made. This approach seemed to work better, as it provided a lot more clarity. As I now learned how to use an integral design approach I believe this is a handy approach that I will use more often.

Aspect 4: Relationship between project and the social context

The focus of the graduation project is the upliftment of the community. The influence of the project on the settlement reaches beyond the boundaries of the plot.

Looking at the social context of the project means I first had to understand the informal settlements and its problems. It turns out that a lot of people migrate from the rural areas of South Africa to the big cities like Johannesburg. The first step for these migrants are the informal settlement, which can be seen as arrival cities. These settlements all have to deal with the same kind of problems. The program and construction method of my design can be seen as a concept that can be applied on more locations. Because of the flexibility of the construction and the indoor space that can be adjusted by relocation of indoor walls, the design can be adjusted to fulfill the need of the specific location.

Some of the problems informal settlements have to deal with are: very low employment rate, English language, noise disturbance, food insecurity, prostitution, bad living conditions. The centre will offer different functions that can help tackle some of these problems. Thus the relationship between the project and social context can be found in the program of the building. The functions or activities that are being housed by the building can be described as following. First is the input, that describes the target groups and the reason for the function/activity. The second way, the output, shows the impact of the centre in the community and beyond.



Input

- Students: A study area where students can come to have a quiet place to make homework and learn for exams. They will be provided with a meal to lower the food insecurity.
- Unemployed community members: The office where inhabitants without jobs can come to ask for help in finding a job or get advice on how to start a small business.
- Community members: There will be a skills centre where inhabitants can come to learn different sets of skills that will increase their chance of a job. These skills can be sowing, using tools for building, learning English etc.
- Community members: There will be a workplace where inhabitants can come to with their own materials to create improvements for their houses. This will be done in combination

with the skills centre where they will learn to make these improvements by following a workshop.

- Young mothers: There will be a shelter where the young mothers will be housed and will receive counseling to better their self-esteem and help them find another job to get them out of prostitution.
- Selected families: Certain families will receive food coming from the kitchen and greenhouse to lower their food insecurity.

Output

- A higher rate of students that receive their degree, thereby increasing their chance of finding a job and moving on to middle class living.
- A higher rate of employment among community members, increasing their chance of moving on to middle class living
- By creating improvements for their housing, the living standard of the community members will increase.
- By teaching the young mothers their own worth they will get out of prostitution. By teaching them new skills their chance of a better job will increase, making them able to take good care of their children and hopefully move on to middle class living.

This working together of the centre and the community would be an ideal picture, and if proved to be working could play an important role in the lives of many inhabitants. By offering a wide variety of functions and activities, the impact can be seen in many different areas. But the most important is that of finding a job and giving them a future prospect of moving on to a different area in the city, with better living conditions.

Aspect 5: Discussion

As my project is located in Johannesburg, South Africa, the first issues or dilemmas arose quite early in the process. I had to learn very quickly to think outside of my own context and get familiar with another culture. This sometimes proved harder than what I had anticipated on beforehand. I will discuss some of the most important or biggest issues and dilemmas I encountered during my design and research process.

My research was focused on the improvement of shack houses by using the potential of waste materials. The difficulty of this process was mainly to find out which tools they had access to, and what could be done with the waste materials at hand without buying something new to add to the process. The problem about the tools and their way of building could be for the biggest part be answered by my contact in Johannesburg. He sent me photos and videos of the building process, which gave me insights in the local way of doing things. But the way of approaching my research question was by using the research by design methodology. This gave me the chance to use a hands on approach. I tried to make all the improvements myself, which gave me the chance to analyze which processes would work and which wouldn't. During this research process I came to the conclusion that changing my mindset about the use of waste proved to be a challenge. With everything you need available in stores and having the money to buy it, thinking about new functions

for waste materials was rather difficult. But by collecting some case studies and using these as examples I actually started to like this way of doing research.

As I mentioned before, the different culture was also something I had to get used to and learn to incorporate into my design. My biggest ethical issue I could point out is that of the basic living conditions. The inhabitants of this community are used to a certain standard of living, with their houses being in bad condition, having to collect water at a communal tap, and an outdoor toilet that is not connected to a sewage system. This ethical issue arose once I was making the program of requirements, especially when I was formulating the needs for the women shelter. I wrote down that they needed a toilet (indoor, connected to a sewage system), a shower, water taps in a lot of rooms and big personal rooms for the women. But after a tutoring session where we discussed the common conditions I made adjustment to these requirements. The idea is for these women to, after intensive counseling sessions, reintegrate back into the community. They will buy or rent a house and try to make a living for themselves. Therefore the difference between the shelter and the standard living conditions in the community can't be too big, otherwise these young women might end up in a negative spiral again. Whilst my own feeling wanted to give these women all the things I'm used to having and seeing as basic living conditions, I understood I could better not do this.

The third important issue I want to mention is that of the building method and the materials to use. My starting point for the building process was that it had to be a simple construction that could be build by the community itself. My focus was on using either second hand building materials or waste products (like paper, plastic, glass bottles). I spend a lot of time on this topic, because my knowledge about Dutch ways of constructing buildings was holding me back of thinking about the construction process more freely. I tried to regulate and find out exactly the best way to construct a beam or column. But in reality this would not work, as they will use whatever size or shape of material they have at hand. So at last I decided to create a concept and some starting points which would make the construction of the building possible, but give the freedom to the community members about what materials to use exactly.

The last dilemma I want to discuss is that of safety. Out of my own experience I feel like the standard in South Africa in terms of safety is: the bigger the house, the higher the fence. On request of the owner of the plot, this project will also be surrounded by a security fence/ wall. The issue that arose around this topic was: what is 'safe' and what precautions do I have to take? For instance, the building will house a greenhouse and vegetable garden. Does this mean that because food insecurity is such a big problem in the settlement, this greenhouse needs extra protection from potential robbing? Or is this an event that will never occur? I know that with my limited knowledge about the behavior of the inhabitants I will not be able to answer this question, so for my design I only kept in mind the minimal security measures. This means a wall around the plot, and potential lighting during the evening or night, which makes it possible to spot intruders early on. The actual measures taken on this topic are up to the owner once the building is being build.