

Living together with water in a city is one of the biggest challenges for the near future. This is also the case for Dar es salaam.

The two rainseasons of dar regularly results in floodings. Deforestation upland and deforestation of mangroves, waste in the floodplains, etc. only worsen the situation. But one of the biggest and most important causes of the floodings is the development of the city itself.

Dar is based on three natural waterreservoirs. Till the end of last century, the city had develop mainly between these waterreservoirs. But in the late '90's this changes. A lot of inland residents came to dar for better living conditions. There was a big population growth and a new master plan for Dar wasn't finished. So these people settled down on the cheapest plots, in the middle of the floodplains.

So my vision is: isn't it possible to safeguard these floodplains of buidings and return them into positive green areas in the city. So that dar became a lob city with green fingers based on the natural waterreservoirs of the city.

Based on research I made an analysis map about the floodplains of Dar. I choosed the Kigamboni Wetland as my project area. And if I made a projection of the NKCP on the current situation, I see they doesn't take this floodplain into account.

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So how is it possible to transform this area into a positive space in the city? After doing some research I decided to make a mangrove park in this area. Why a mangrove? Because the knowledge of the local community and the knowledge of mangrove experts can provide interaction. But mangrove also works as the lungs of a city. And it is possible to use this mangrove park for the treatment of wastewater.

To making this project successful, a good phasingplan is needed. The park is divided into 6 nursery zones and these are built up step by step. Starting with this central nursery zone 1 in 2020. Off course it is needed to replace the households living in the project area to an other location. But I don't want they need to move on kilometres and kilometres out of the city. So on the edges of the park new basic housing in foresee. I see this housing as a kind of the incremental housing from elemental. Whereby the placing of the houses is based on the current city, but also on the structures in the park. So when the city grow these structures coming out of the park can be used as a base for the further development of the city.

Simultaneously with the groundworks and construction of wooden pavilions of nursery 1, groundworks in zone 2 can start. Here there is made a connection with the sea.

So when the groundworks and construction period of the nursery pavilions is done, the nursery and planting program can start. This needs to be done to the sea instead of inland.

The nursery program stays in the pavilions till circa 2040. After this the nursery pavilions can replace to another project zone or can returned into other urban functions.

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So in this big project I design the pavilion for nursery zone 1. Right from the beginning this nursery is combined with an awareness centre. Where tourists, but also the local community can get information about this park project, but also about living in harmony with water in the city. So there are functions like a library, a classroom, an exposition space. But also national and international researchers can get a place in the pavilion.

These functions are divided into three pavilions:

- Reception pavilion: here visitors can have the first meet about the mangrove propagules and its nursery program and they can look into the mangrove library.
- The research pavilion: this is the place where interested people and the local community can get lessons about the planting program of the mangrove park and mangrove propagules. But also the researchers have here an own private nursery for doing good research without off public.(pumpsea)
- As last the leisure pavilion: this has more relaxing functions as a guestroom, the exposition space, but also a pub is placed here. In line with this pavilion a watching tower is placed.

My ambition is that the direct environment of the city grows out of the structures from the park. So it is important that these structures are attractive enough. So that's why these pavilions are placed on a platform functioning as a small public square. The terrace of the pub and the library are also placed on this platform. Placing these tree pavilions on a platform it creates the opportunity to use this platform for bigger groups. But at night there is also the possibility to use this platform for small party's or performances.

This is a little floating plateau, for docking boats. There is also a plateau under the research pavilion where workers can go to the planting area by boat.

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Because the function of the mangrove nursery isn't a permanent function, the designing process was a search for a flexible structure as possible. So the pavilions are build up out of several modules, and each module is build up on the same way. Through the composition of the modules, the column structure can be used for the placing of the functions. On the upper level, the span is made out of a wooden truss. This brings the opportunity to leave this column out and bigger functions, as a classroom can be placed here.

The wall panels are also made as flexible and changeable as possibly. So they can be changed as the function of the pavilion changes.

I chose to build these structures up out of eucalyptus wood. When this fast-growing trees are replant at the beginning of the project, they can be used after the nursery program and recover the structure.

The nursery function of these pavilions lends itself to use a fog system for watering the mangrove propagules and this also has a cooling effect on the indoor of the pavilions. But through this fog system the indoor climate becomes humid so good ventilation is needed. That's why I looked to

the most dominant wind directions for placing the pavilions. I also lifted the roof up, so cross ventilation is possible. And on some places the roof is a bit higher so ventilation in the other direction is also possible.

The mangrove propagules have to be protect against the sun in the first weeks. So these tiltable roofs can used on that specific way dependent of the sun and foresee enough shade.

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So what would I like to achieve with my project? The Mangrove park has the ambition to condense the city out of this green structure. And this idea can be used also on other sites in the city of Dar. But this project is also a place where the local community can work together with mangrove experts to making this park project became a success. So actually it is an top-down idea but the mangrove park needs to build up on a bottom-up way, together with the community.