

A farm in the Sahara Desert

Memory of a place

A small place created by a family of farmers
Buildings made from the dirt of the land
Created for the purpose of utility and beauty

Rooms for the family, spaces for work and rest
Shelter for the animals
Spaces where light was absent
Changes in temperature and humidity

A home in the eastern part of the Sahara in Egypt, not far from the river Nile
– My great grandfathers dwelling

Building on this memory I want to create a farm in the Sahara desert that respond to
the place it exists and the people that build it.

A farm is formed from the place it stands, and the functions it has to serve.
Here people and animals co-exist and together they create the opportunity for plants
and food to grow.

A new way of looking at agricultural settlements in the desert outside of the Nile Valley.

The project is a farm connected by a desert road near the Nile Valley. Every year villages around the Nile Valley experience that their agricultural land is being sacrificed for new settlements due to a steady growth in population. Over the years many have therefore started dreaming about moving to the desert where they can reclaim new land.

With this mindset several architectural projects have been initiated over the years. One example is “Agricultural Village” in Algeria by Houari Boumediennes. And another is “An Experimental City in the Desert” in Libya by Kisho Kurokawa – A project which captures the dream of a settlement in the desert for Bedouins, but seems to misunderstand the end users – the Bedouins, a nomadic group that does not settle in one place as it moves constantly from one place to another.

Today there are two dramatically different ways of living and working in the desert. On one hand there is the people that have developed ways of utilizing the soil and water that exists in the oasis. Parallel to the people there are the bigger more corporate farmers that promote farming at a large scale – almost industrial. These take up much land while offering little work to the locals. This large-scale farming is in effect disrupting both the social structure and has a negative environmental impact by draining the local aquifers of water.

With today’s rising temperatures and influx in population in the cities and villages around the Nile Valley the dream of the desert landscape has become the reality for many. The tendency within these groups is that they create small clusters of buildings, that can be called Saharan towns.

The farm - my vision

A big family moves to the side of a mountain near the Nile Valley. They create a set of structures based on traditional craftsmanship. With limited resources and long-established knowledge, they build structures that can handle the challenges of the desert – with this they start defining a place.

In the process of making a place, or in this case a farm, I ask myself what we as people need in order to feel connected to such a place. The memory becomes important, and this memory can be the street between my old home, the trees I used to climb in, the neighbouring plot where I played football, or the fireplace where my family gathered at night.

The place of this project is as mentioned on the side of a mountain and has a potential to sustain life in the desert landscape. On the top of the mountain condensation and rain turns into ice. The ice melts and turns into flowing water, which over time creates small valleys in the desert landscape called “Wadis”. The date palms, fig trees and other vegetables can in fact survive from this water.

The type of vegetation is particularly important as it can create different layers of shade. The palm trees are tall and shade the second layer of vegetation - the fig trees. Together these trees create enough shade to grow vegetables.

After I created the site, I started to investigate where a farm like this could be situated. I found a place at the South-Eastern part of my location where it seemed possible to create a structure spanning from one foot of a mountain to another. While this structure creates a strong border between the farmland and protects from the winds of the desert in the South. On the North, East and West side of the farm the surrounding mountains take this role. A long linear structure like this one, has two distinct sides. On the north side of the wall there will be a shadow and in the south the wall will absorb the heat of the sun. This can be utilized by the people inhabiting the structure, and for how the farm functions.

In the center I create an opening that works as the only entrance to the building and allows water to drain from behind the structure during heavy rainfall.

On the north side, in the shade, I place:

- The animal shelter
- The family house
- The well
- The body of water
- The plantation

On the south side, in the sun, I place:

- Farm building,
- Building used for drying dates and flowers for pollination
- The warm space for the house
- Guest toilet
- The greenhouse/nursery

The farm

The first question I had to investigate and define was where the farm was going to be situated. I found a place on my site where it seemed possible to create a structure from one mountain foot to another. The predominant idea was to create a strong barrier between the farm and the desert wind. In the north, east and west the mountains protect the farm, while in the south the building itself becomes the barrier.

When I placed a wall going from east to west at the foot of the mountain, I created two distinct situations on each side of the wall. On the north side the wall casts shade during the day and in the south, it absorbs the heat of the sun. This is important for the farm as it reduces the total energy needed to cool or heat the building, and it creates different environments that can be utilized for the different functions of the farm.

On the north side of the wall, in far west the animal shelter is placed. The shelter is built from sun dried bricks with a roof of palm trunks and layers of palm branches sealed with clay. The shelter is placed against the mountain in the north to create courtyard. The animals can either be let out to roam here or be taken up onto the mountain to graze.

In the center at the lowest point a Well is drilled and a small clay building on stone foundation is build to house the pump system. On the west side of the well a pond is created after using the earth to create the mixture for the sun dried bricks and the rammed earth.

Around the pond climbing to the east, west and north is the plantation where date palms, fig trees and in some patches where the ground is flat vegetables grow. Extracting water from subterranean water coming down the mountain or in dry periods supplied with water from a drip irrigation system connected to the well.

The house for the family is placed in the east.

You are greeted with a small hallway, a dark room with one window and a clay bench.

Continuing you enter a small courtyard that connects to the rest of the house.

Rooms for guests and family are in the north-west and covered by a dome roof made from sun dried bricks.

On the floor there is a carpet to sit on and a door framing the date fields in the north.

Connected to the courtyard is the kitchen which has a bread oven, a small gas stove, plenty of space for preparing food and small windows with shutters for ventilation.

The family bedrooms are placed along the wall stretching from east to west. Each part of the family has their own space – one room for parents and one for their children. The families share an outdoor space that has benches along the wall, places for the kids to play and is shaded by wooden beams extending out from the roof with a layers of palm branches on top.

On the south side, to the east the farm building is placed. Here all the equipment for the farm is stored. A part of the farm building has a open roof structure made from palm trunks and layers of palm branches . This is where they dry the flowers from the male date palms in June before pollinating the female palms by hand in July. Here the dates also dried when they are harvested in September/October.

On the south side of the courtyard a family space is place, where the family can gather for a meal. When the sun is down and the temperature has dropped, the walls and floor still gives of a nice temperature after storing heat all day.

To the far east a nursery or greenhouse is placed where they grow the small vegetables before planting them in several spots in the fields, when they are old enough to withstand the climate.

Centrally on the wall is the entrance this is the only access for people and where subterranean water can be drained out during excessive rains.

The main Wall is build from rammed earth due to the efficiency and stability of this method, while the rest of the walls are thought to be build from the more traditional method of sun dried clay bricks.

This farm tries to make conscious decisions from the start, where the harsh environment of the desert guides the architectural decisions and how the place should be utilized and planned, while at the same time respecting architectural qualities that are deeply rooted in my childhood memory.