A CIRCULAR RESOURCE MODEL

75% of Maputos population live in informal settlements

(UN-Habitat Programm)

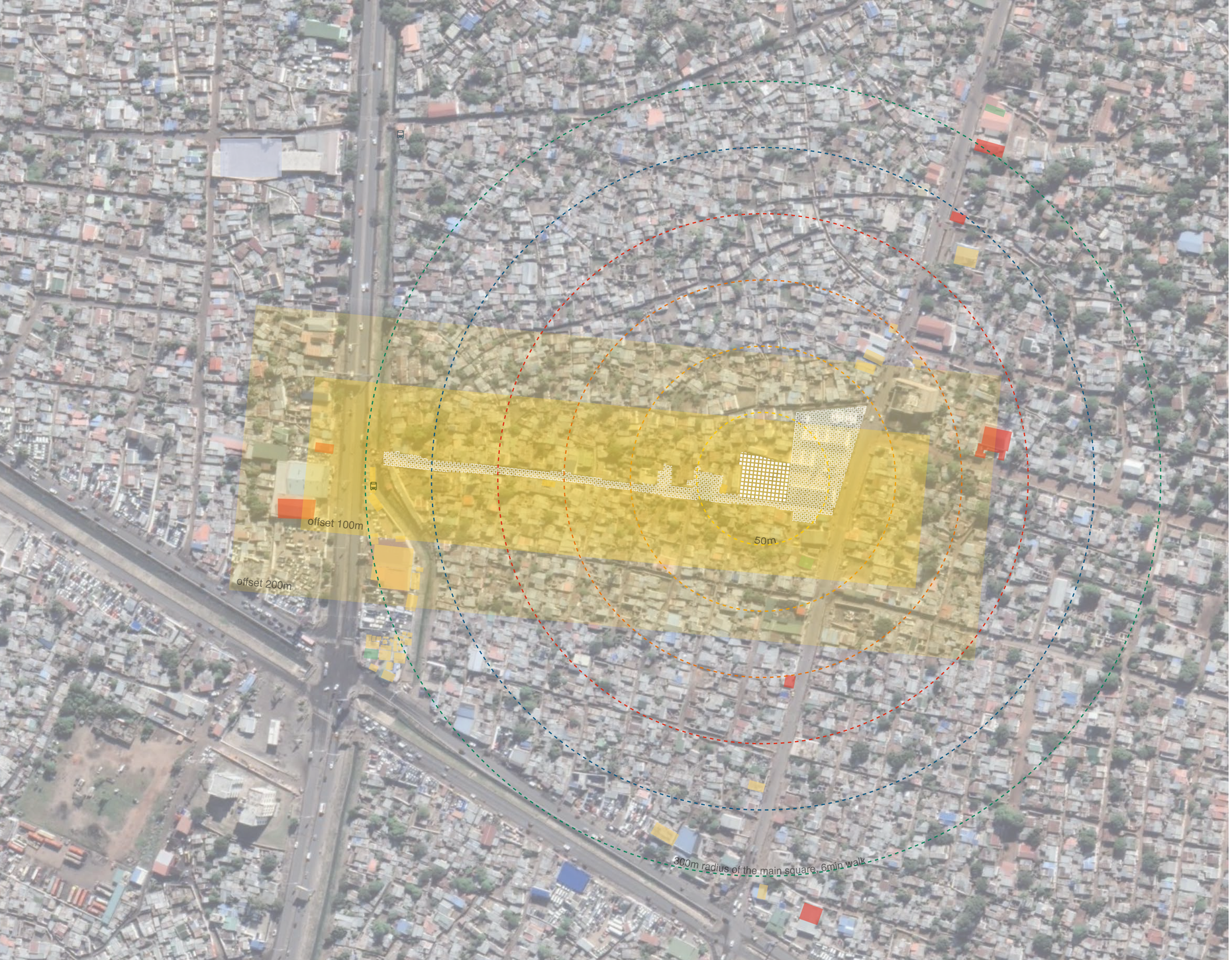
60% of Mozambicans live along flood prone areas

(UN-Habitat Programm)

The demand for housing in Maputo is growing fast.
80 thousand new households annually

(UN-Habitat Programm)

Can public space design adress these issues?

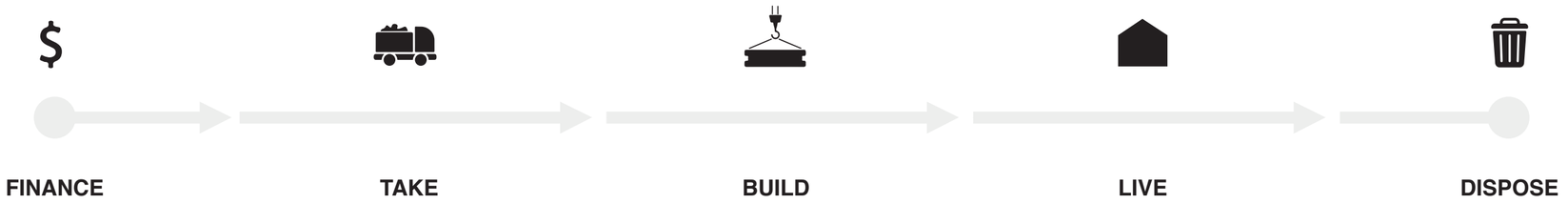


- Education
- Healthcare
- Religion
- Retail
- Sport
- Bus Stop

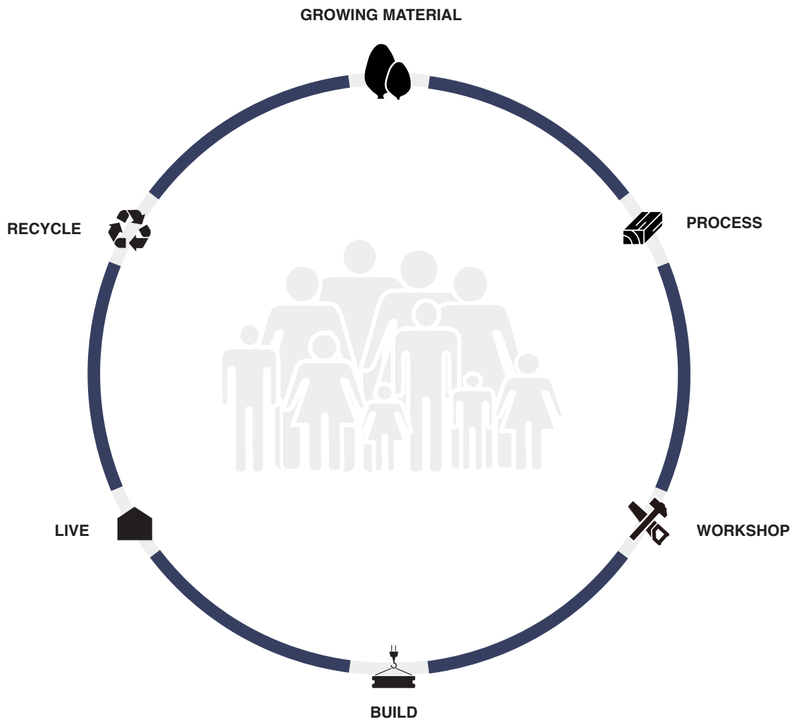
300m radius of the main square, 6min walk
approx. 1,980 residential buildings, approx. 7,920 people,
4/house
1 public transport
0 education
1 healthcare
4 religion
25 retail
0 sports
1 public transport

offset way 200m, 3 min walk
approx. 541 residential buildings, approx. 2,164 people,
4/house
1 public transport
0 education
1 healthcare
3 religion
11 retail
0 sports

offset way 100m, 1 min walk
approx. 298 residential buildings, approx. 1,192 people,
4/house
1 public transport
0 education
1 healthcare
2 religion
5 retail
0 sports



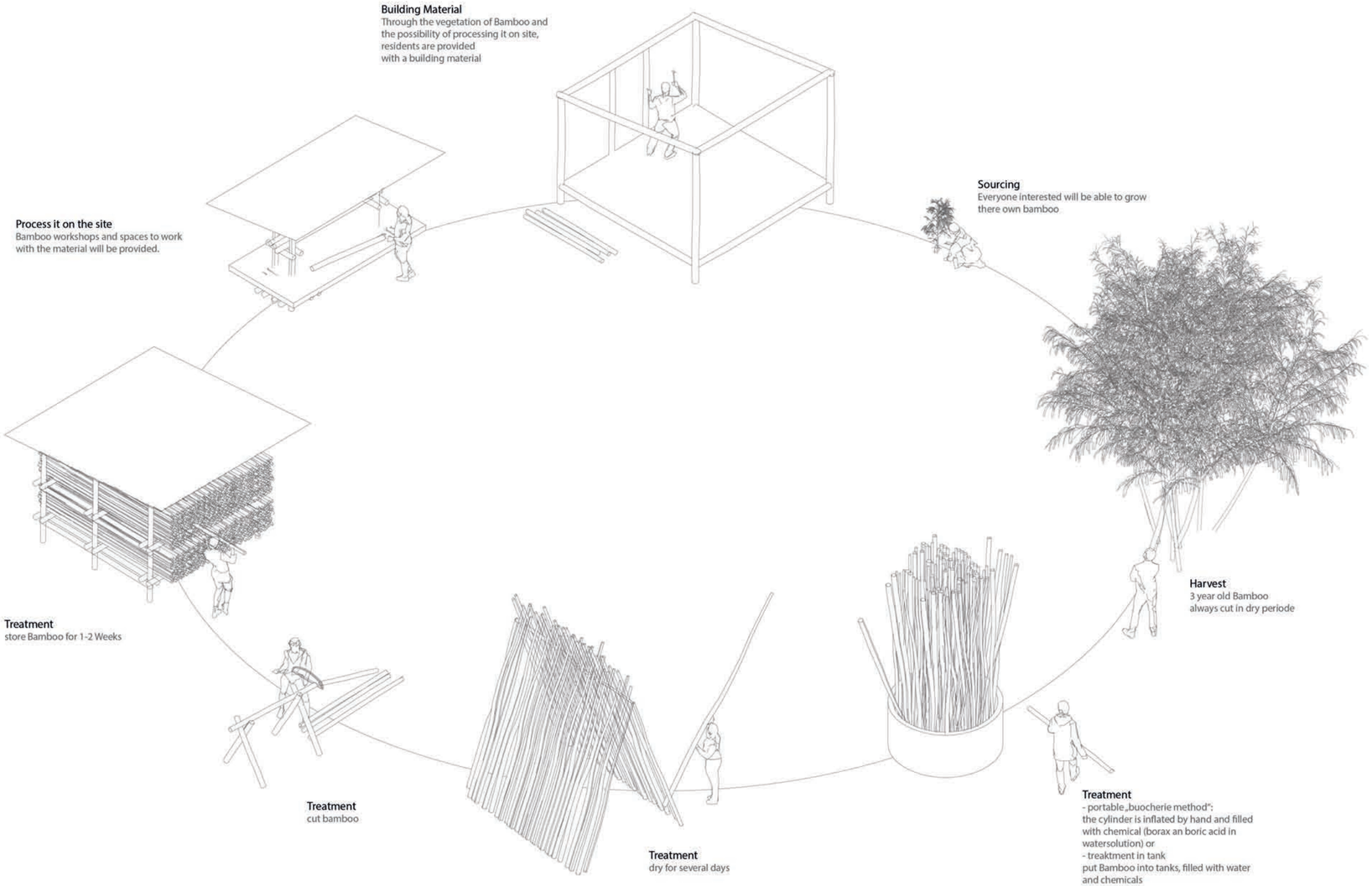
traditional resource model...



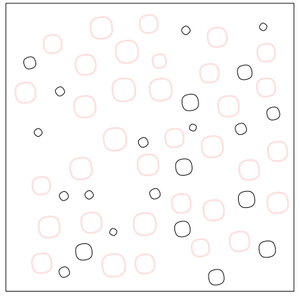
to cicular resource model

There are at least 8 bamboo species present in Mozambique

(INBAR - International Bamboo and Rattan Organisation)

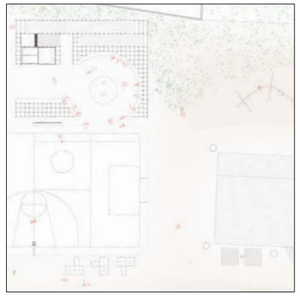

Building Material
Through the vegetation of Bamboo and the possibility of processing it on site, residents are provided with a building material
Process it on the site
Bamboo workshops and spaces to work with the material will be provided.
Sourcing
Everyone interested will be able to grow there own bamboo
Harvest
3 year old Bamboo always cut in dry periode
Treatment
- portable „buocherie method*:
the cylinder is inflated by hand and filled with chemical (borax an boric acid in watersolution) or
- treaktment in tank
put Bamboo into tanks, filled with water and chemicals
Treatment
dry for several days
Treatment
cut bamboo
Treatment
store Bamboo for 1-2 Weeks

PHASE 1 - Sourcing Bamboo



PHASE 2 - Bamboo processing infrastructure

PHASE 3 - Public space design



PHASE 4 - residents are provided with a building material

YEAR **0** → **1** → **5** → **6** → **7**

The entire area of vegetation on the site will be consisting of newly planted bamboo. An open garden community is going to be established in the neighbourhood, which will take care of the bamboo. Anyone is able to join this group. Work and harvest will be divided proportionally between the members.

Vegetation area on site
approx. 2000m²

How much bamboo can you get
out of 1m²?
32 Culms, 0,06 - 0,08m diameter
and 20- 25m height (usable approx 13m)

32 x 13 = 416 x o,o6 = 25 m3

After 3-5 Years
approximately 50.000m3 bamboo available

The necessary infrastructure to be able to process bamboo into a building material will be created on the public square.

To make bamboo resistant against fungi and termites and other environmental influences, a basin is to be built in which the bamboo will be placed after harvesting. Around this basin a tower will be built in which workplaces and a library are created for the community. Its construction is intended to be an example of how to build with bamboo in height.

Next to this building an area used for workshops is going to be built. Its construction also makes it possible to dry and store bamboo for several weeks after treatment. Through workshops, residents will be taught how to build with bamboo.

- Workplace with storage options for tools 100 m²
- Workshopsplace to communicate know how 100 m²
- Storage for treated bamboo 40 m²
- Area to wash and dry bamboo 10 m²

Tower approx. 25.000m3 bamboo needed
Workshop approx. 20.000m3 bamboo needed

Next to the public square is an abandoned school, which will be rebuilt with bamboo. Residenst requested a Daycare Building.

In addition, market stalls and seating will be created on the public area.

Practicing sport is very important to many local residents, especially the young. As soon as there is enough space for a soccer field, it is beeing used as such. The large open space will consist of a multifunctional sports field. Goals, basketball hoops, floor markings and a varied color scheme will enhance the place.

A new, modern, car-free pathway of around 150m lenght is going to connect the square to the existing infrastructure.

- DayCare 100 m²
- 10 Market stands
- Large, multifunctional space with goals and basketball hoops 26m x 14m 364 m²
- Toilets 10 m²

approx. 35.000 m3 needed

Through the use of bamboo and the possibility of processing it on site, residents are provided with a building material.

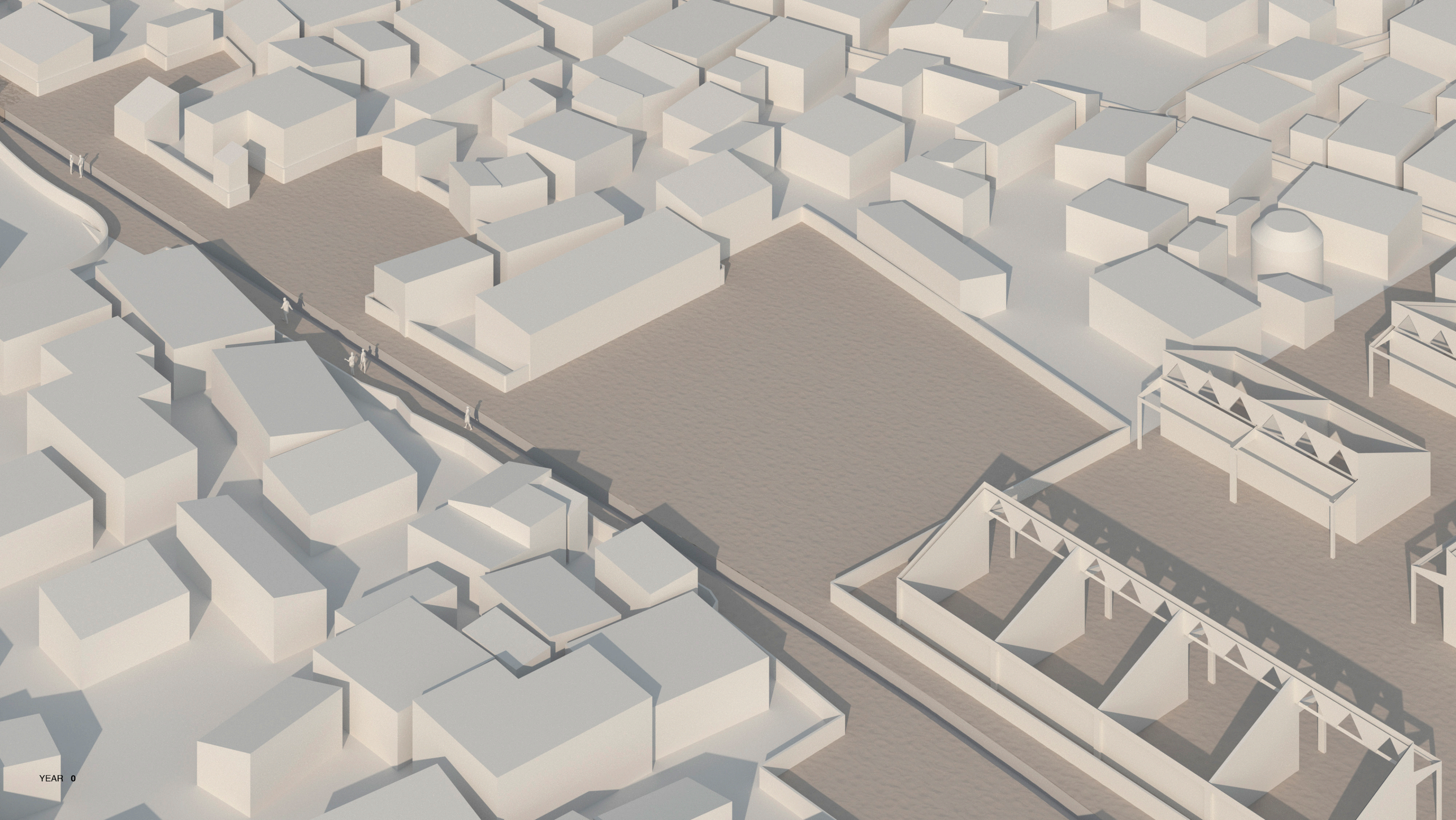
This process intends to strengthen the relationship between residents and the public spaces in the neighbourhood and ensures that they are maintained regularly.

It is aimed to communicate the know how to residents and to give them the opportunity to not spread out their houses farther into the surroundings as it happens now, but to build up vertically with very easy construction methods into more-story houses.
This should help to reduce the spread of informal settlements and to use the given infrastructure more sustainably. In addition, the superstructures offer optimal protection from increasingly frequent floodings.

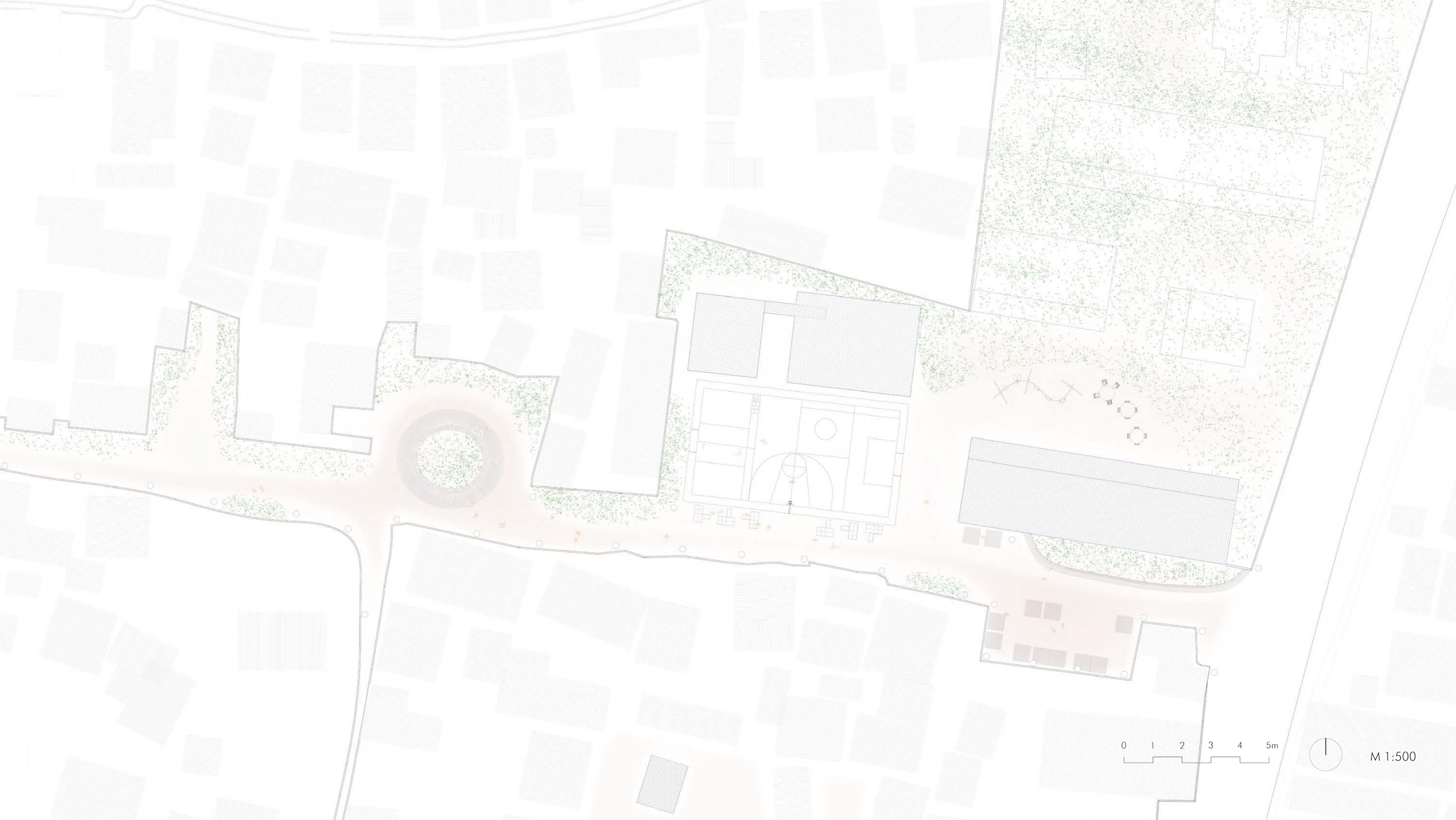
Expansion of residential buildings

+ one floor + 40m²
approx. 4.000m3 Bambus needed,
0,06 - 0,08m diameter

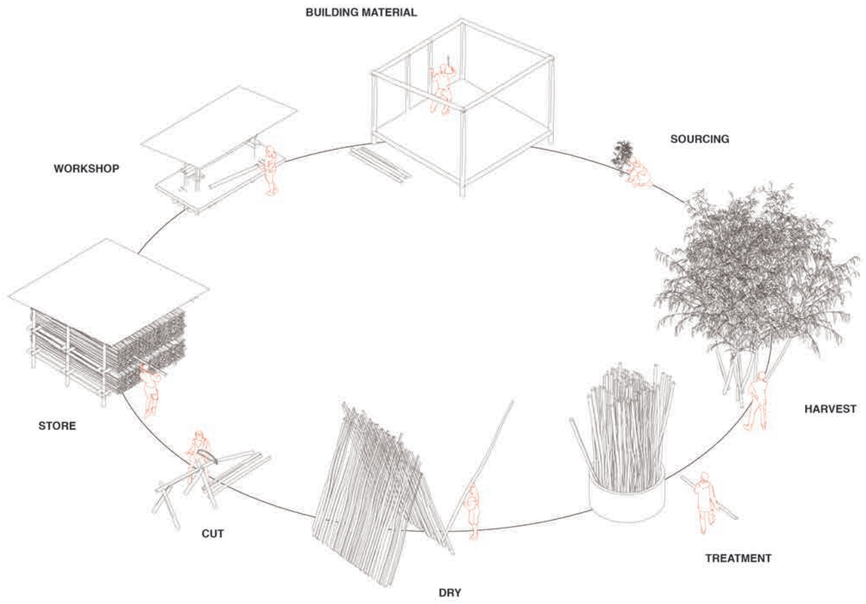
+ two floors + 70m²
approx. 7.000m3 Bambus need,
0.06 - 0.08m diameter

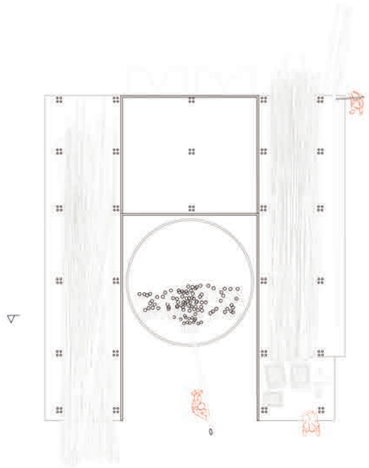

YEAR 0

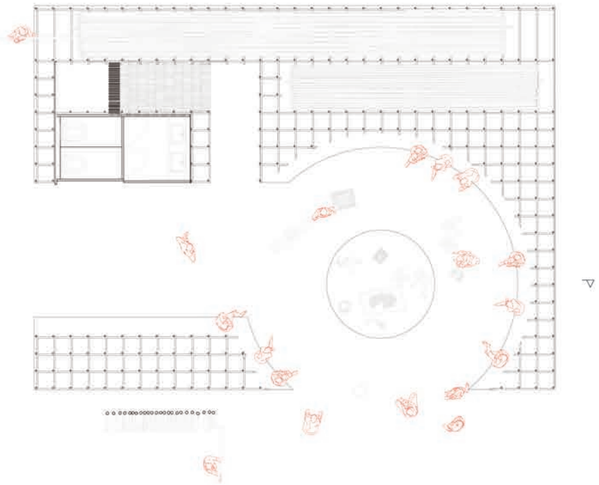

PHASE 1 - Sourcing Bamboo
PHASE 2 - Bamboo processing infrastructure
PHASE 3 - Public space design
PHASE 4 - residents are provided with a building material
YEAR 0
1
5
6
7

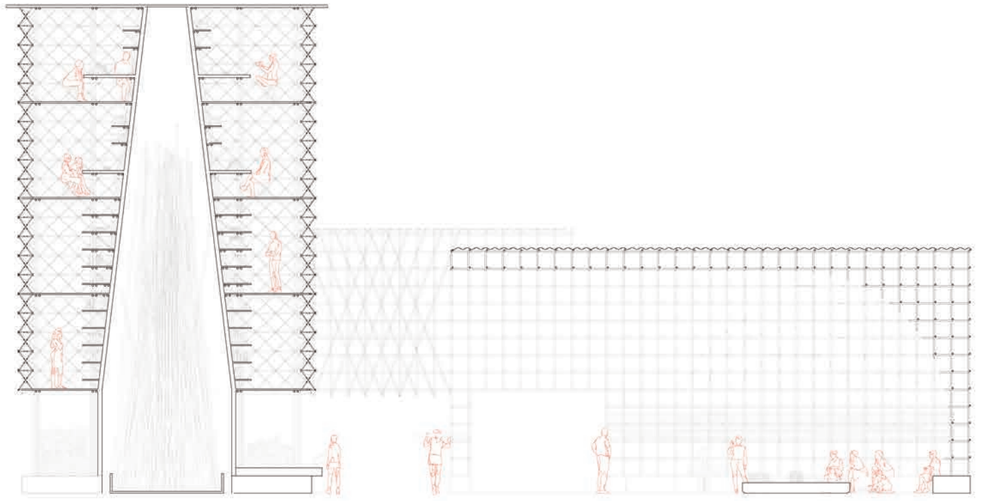

0 1 2 3 4 5m
M 1:500

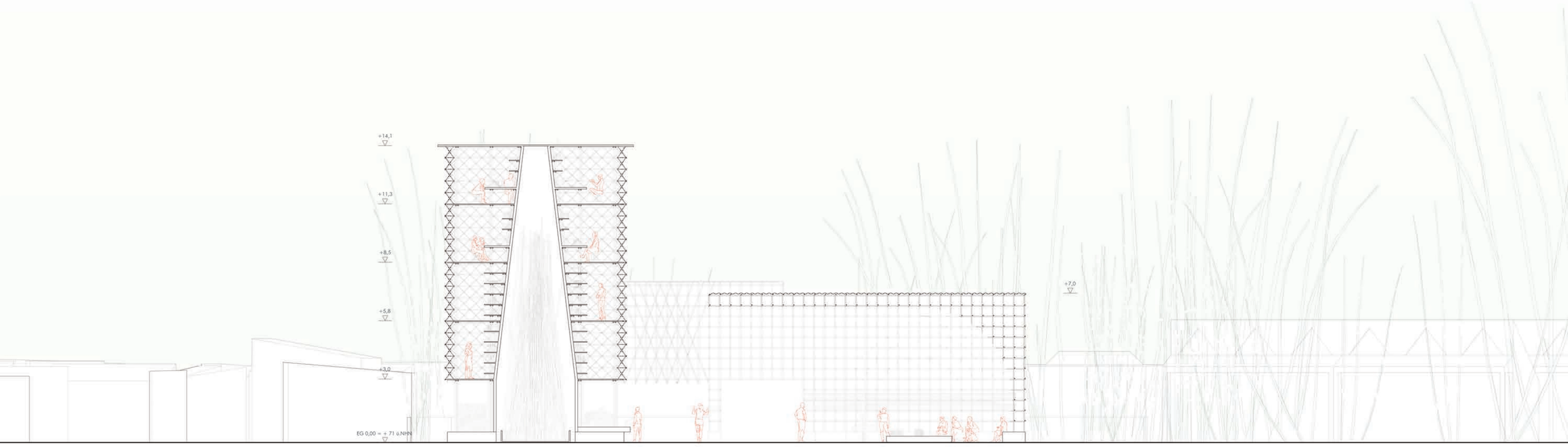

0 1 2 3 4 5m
M 1:100


BUILDING MATERIAL
SOURCING
WORKSHOP
HARVEST
STORE
CUT
TREATMENT
DRY





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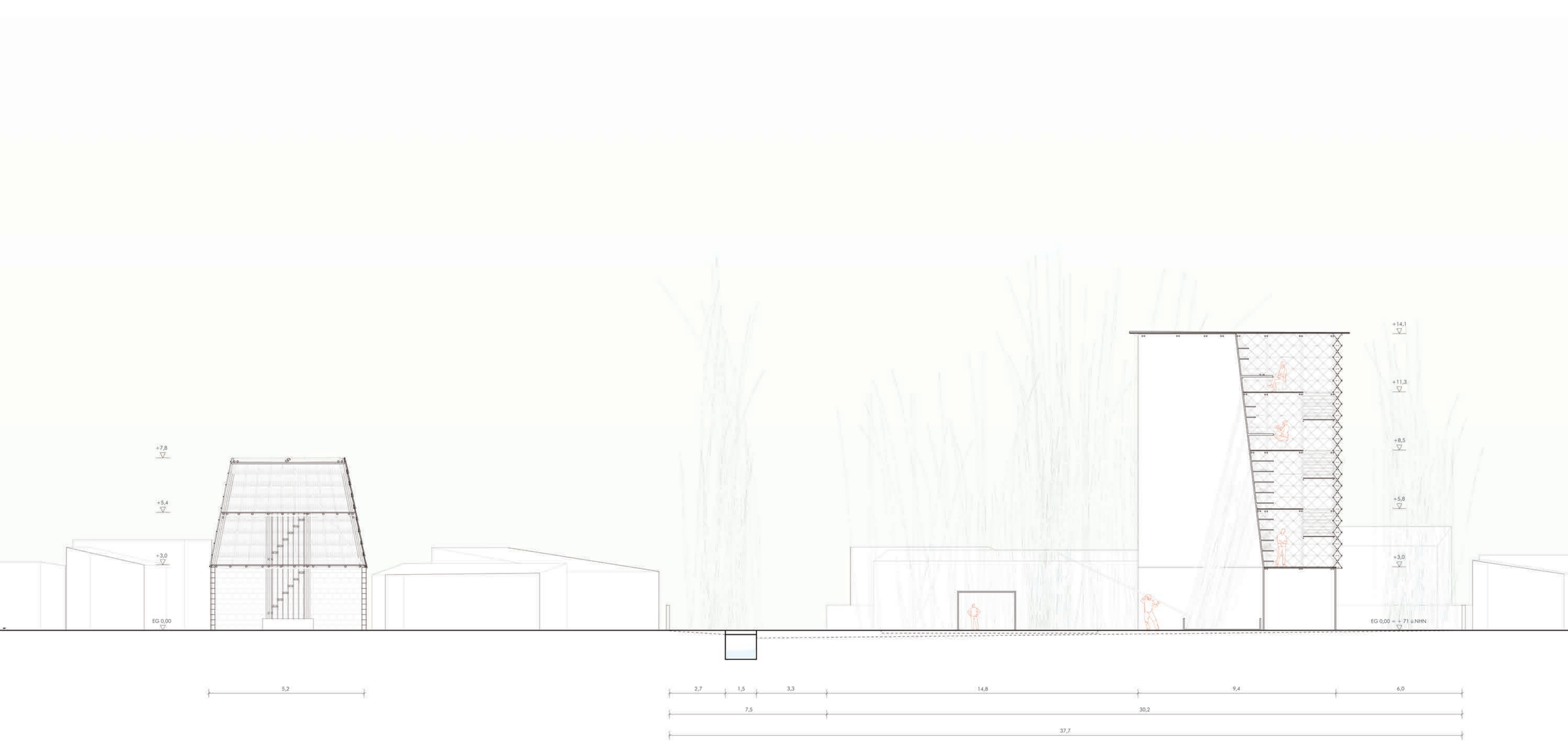
+11,3
+8,5
+5,8
+3,0
EG 0,00 = + 71 ü.NHN
+7,0


1,7
2,2
4,0
2,2
4,0
0,5
4,0
0,5
1,5
1,9
3,1
2,4
1,0
5,5
1,7
8,5
4,0
15,0
5,5
35,0


0
1
2
3
4
5m

M 1:100


+7,8
+5,4
+3,0
EG 0,00
+14,1
+11,3
+8,5
+5,8
+3,0
EG 0,00 = + 71 ü.NHN
5,2
2,7
1,5
3,3
14,8
9,4
6,0
7,5
30,2
37,7
0 1 2 3 4 5m
M 1:100