

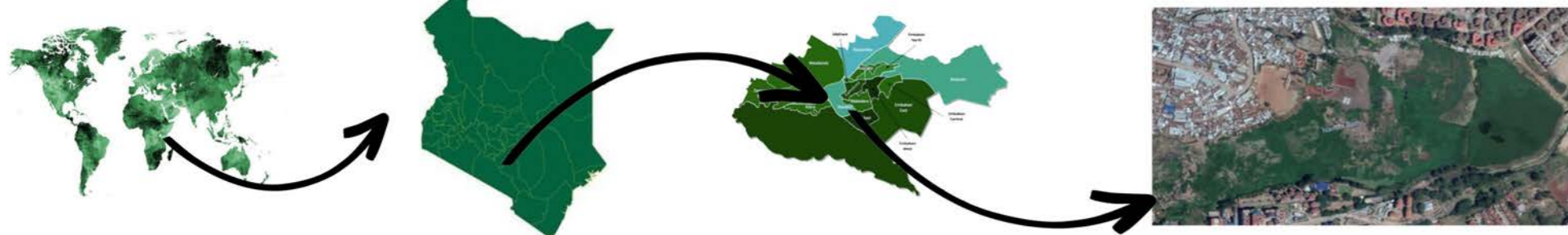
# RECONNECTING FLUIDS

## Rehabilitating water and food security around the Nairobi Dam

In the last centuries landscapes and human metabolism have faced disconnection. Physical and conceptual reconnection of the global ecologies with foodscapes and hydrosapes could grant improved systems thinking about our place in the environment and prevent further damage to the planet that sustains us. The outcome of this split is very present in the Nairobi Dam area, where clean water is inaccessible due to the extreme pollution, which limits the availability of food leaving 50% of the population of the informal settlement of Kibera undernourished.

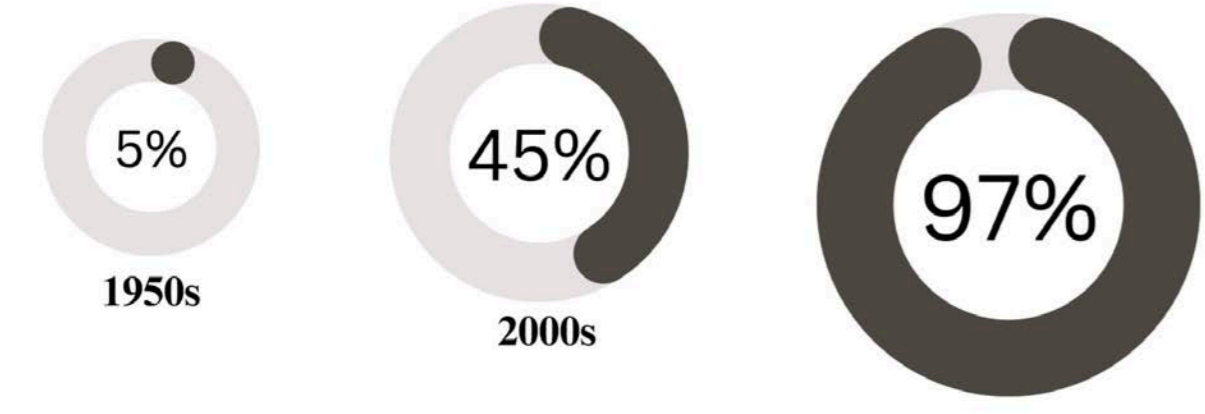
In our design, we looked at the possibilities of water treatment solutions, which could also carry improved access to food. Starting from the sewage source we proposed agro-sanitation units sustaining food production by recycling grey water, urine and human faeces. This was inspired by kale sack urban agriculture in Kibera, bio-centres transforming faeces into bio-char and scientific research. At the second stage of water treatment, we placed decentralised sewage sanitation stations with water soaking through the soil to irrigate the surrounding agroforestry. In the last stage, there will be the transformation of the Motoine River and the Nairobi Dam into wetlands with plants uptaking the pollution, fisheries enriched with agroforestry and recreational spaces on the banks. We hope that by applying these solutions we can answer to the global need for wetland restoration, water accessibility and food security.

### LOCATION

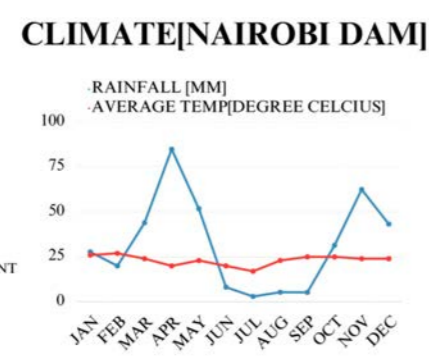


### DATA

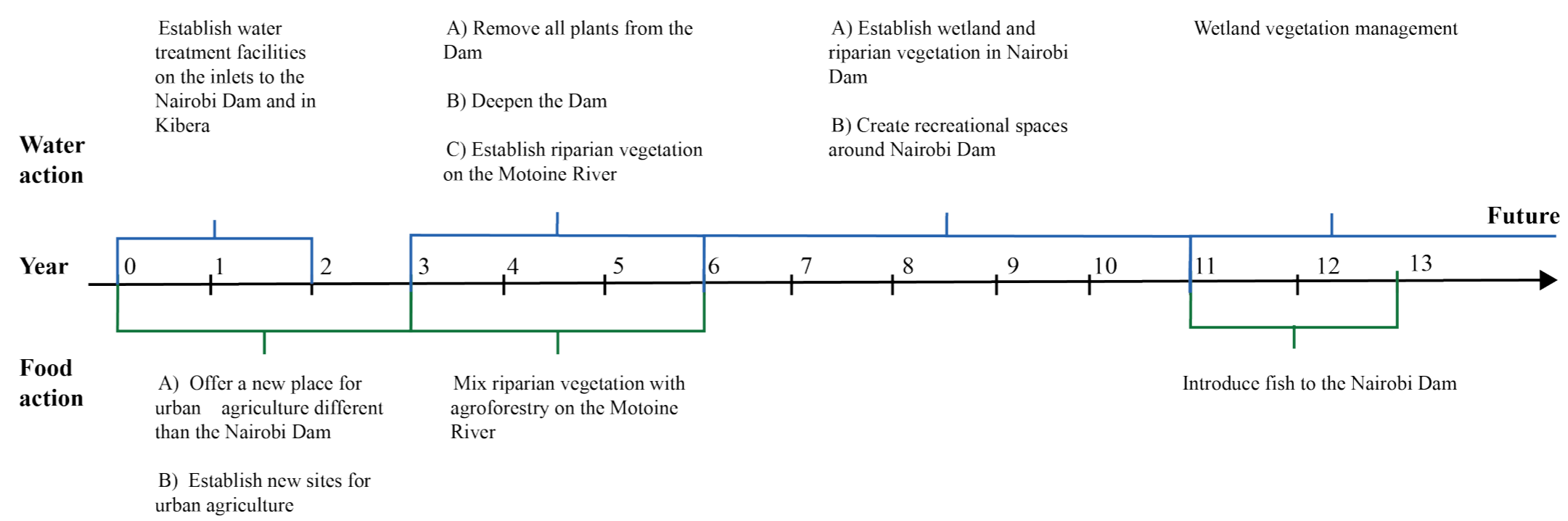
#### POLLUTION LEVELS OF THE NAIROBI DAM



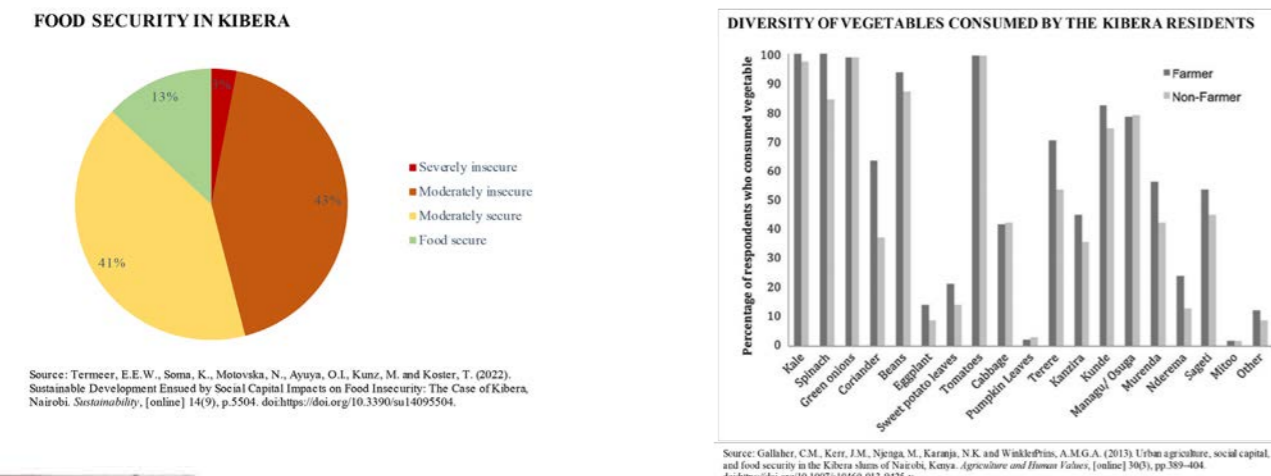
NAIROBI DAM	
Construction year	1950s
Storage capacity	98422 m <sup>3</sup>
Surface area	356179
Depth	2.76m
In let and outlet	Motoine River inlet Ngoni River-outlet



### MANAGEMENT TIMELINE FOR THE NAIROBI DAM



### FOOD SECURITY IN KIBERA



### MAIN ISSUES



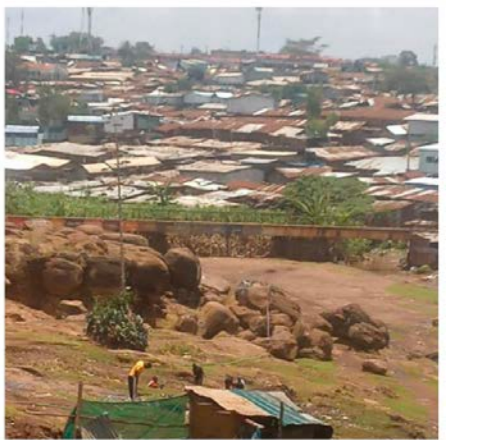
WATER POLLUTION CAUSED BY VARIOUS ACTORS



ENCROACHMENT OF THE RIPARIAN ZONE BY KIBERA INFORMAL SETTLEMENT



FOOD INSECURITY WORSENED BY WATER TOXICITY



LACK OF SEWAGE AND SOLID WASTE INFRASTRUCTURE IN KIBERA

Source: Photos taken by the team members

### PAST, PRESENT AND FUTURE OF THE NAIROBI DAM

#### Future



#### 2023



#### 1950

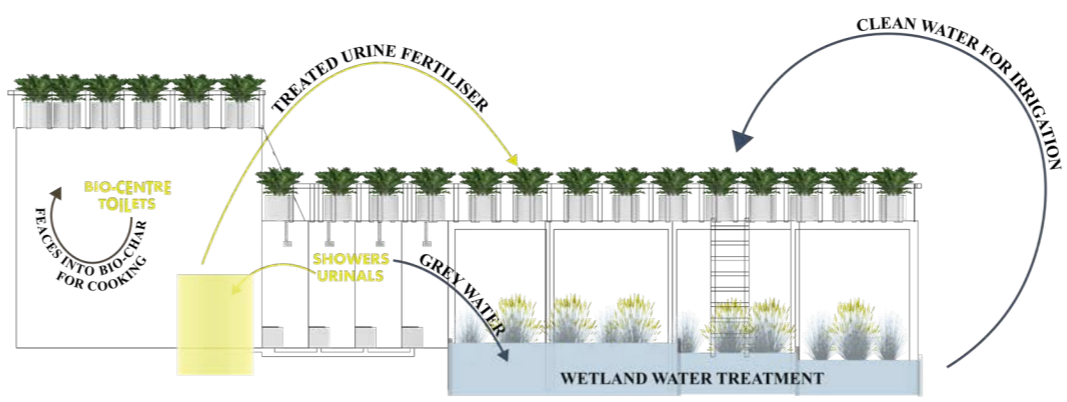






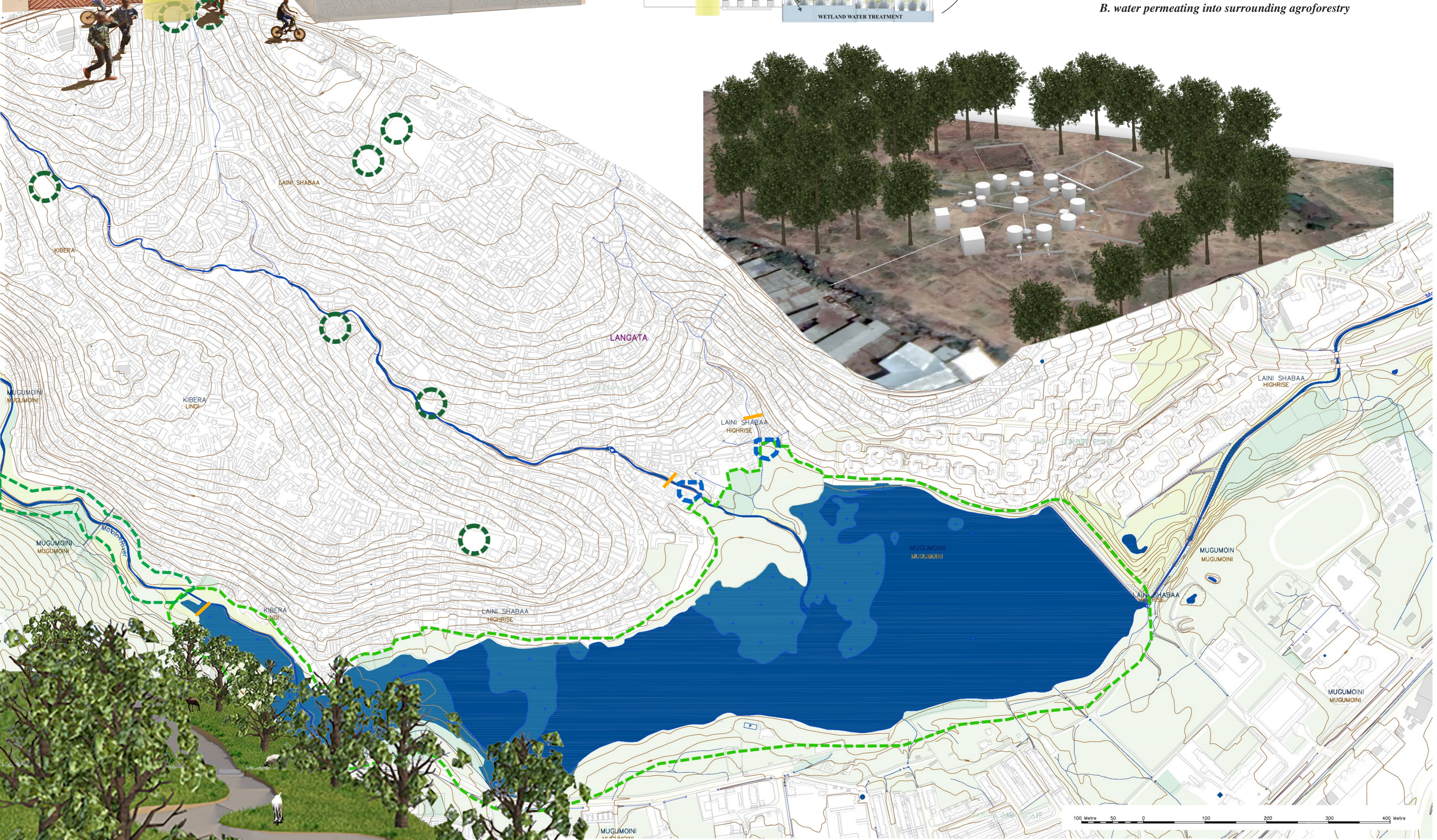
**AGRO-SANITATION VEGETABLE UNITS**

- A. human waste supporting vegetable production
- B. urine transformation into fertiliser through exposure to sunlight
- C. faeces transformation into bio-char in bio-centres for cooking
- D. recycling of grey water



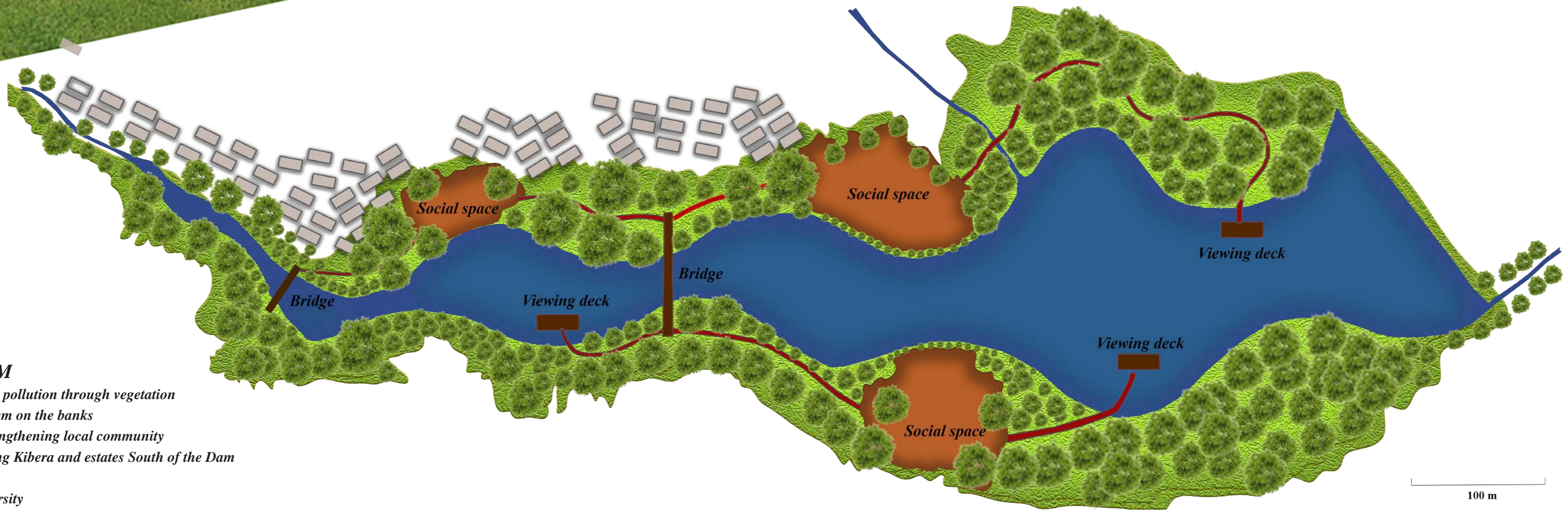
**DECENTRALISED WATER TREATMENT**

- A. water treatment through sedimentation and microbes
- B. water permeating into surrounding agroforestry



**MOTOINE RIVER**

- A. re-meandering
- B. reeds, trees, shrubs and grasses as filters and erosion control
- C. edible species to support food security
- D. increased biodiversity



**NAIROBI DAM**

- A. wetland uptaking pollution through vegetation
- B. agroforestry system on the banks
- C. social spaces strengthening local community
- D. bridges connecting Kibera and estates South of the Dam
- E. fisheries
- F. increased biodiversity

**SOLID WASTE**

- A. 10x10 pore mesh barrier
- B. at the river inlets
- C. trap for floating and sunken waste
- D. recycling waste in vocational training centres into bricks as proposed by the Nairobi-based engineer Nzambi Matee

