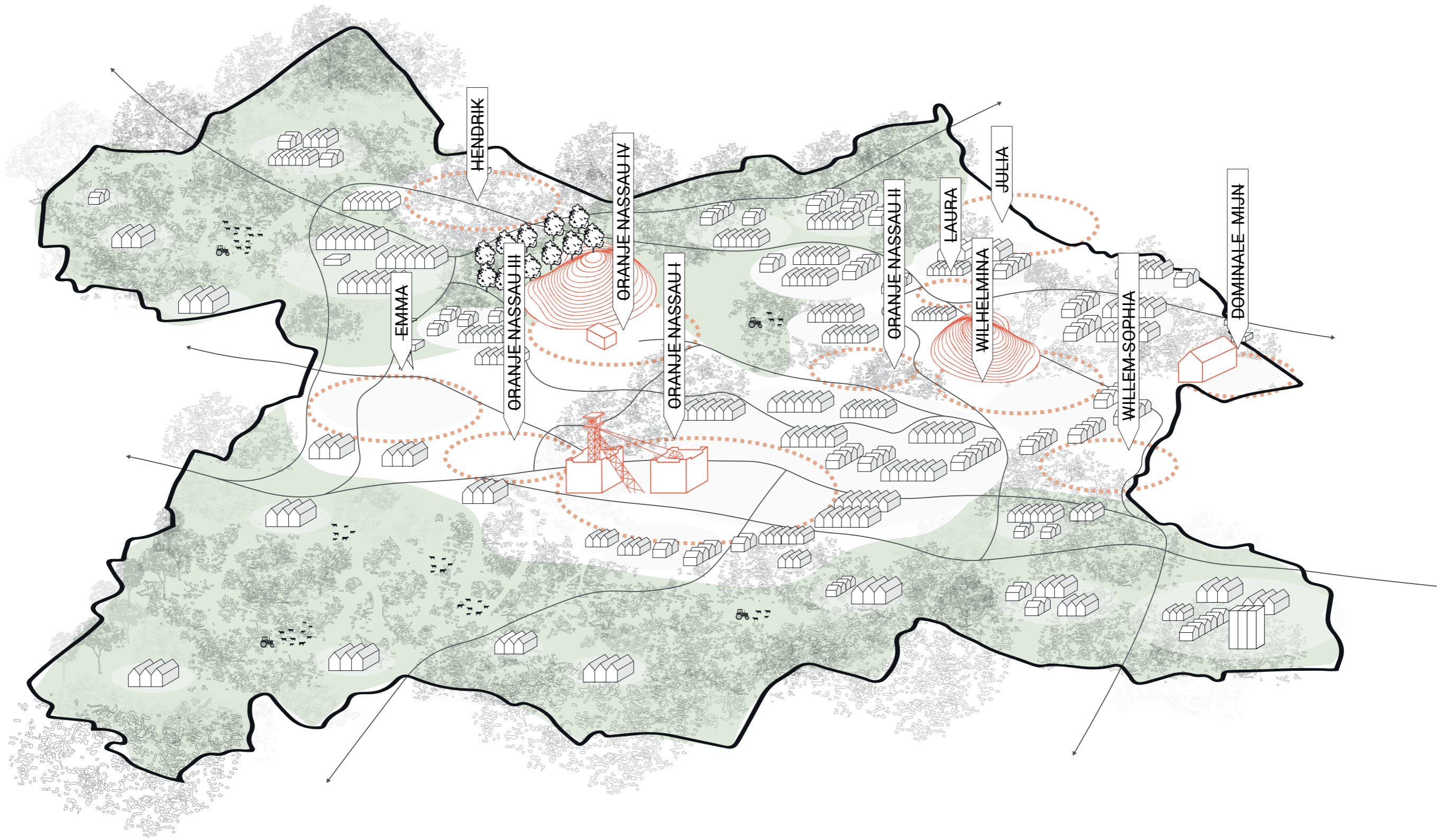


- Mine industry
- Living area
- Fragmented nature
- Roads

Around 1897 agricultural area of the south of Limburg transformed into the Dutch epicenter of coal mining. The region was completely structured around the coal mining activities. Mining was not only the most important economic facet, it also formed the cultural identity that structured the landscape. Only within a few years it became the most wealthy region of the Netherlands.

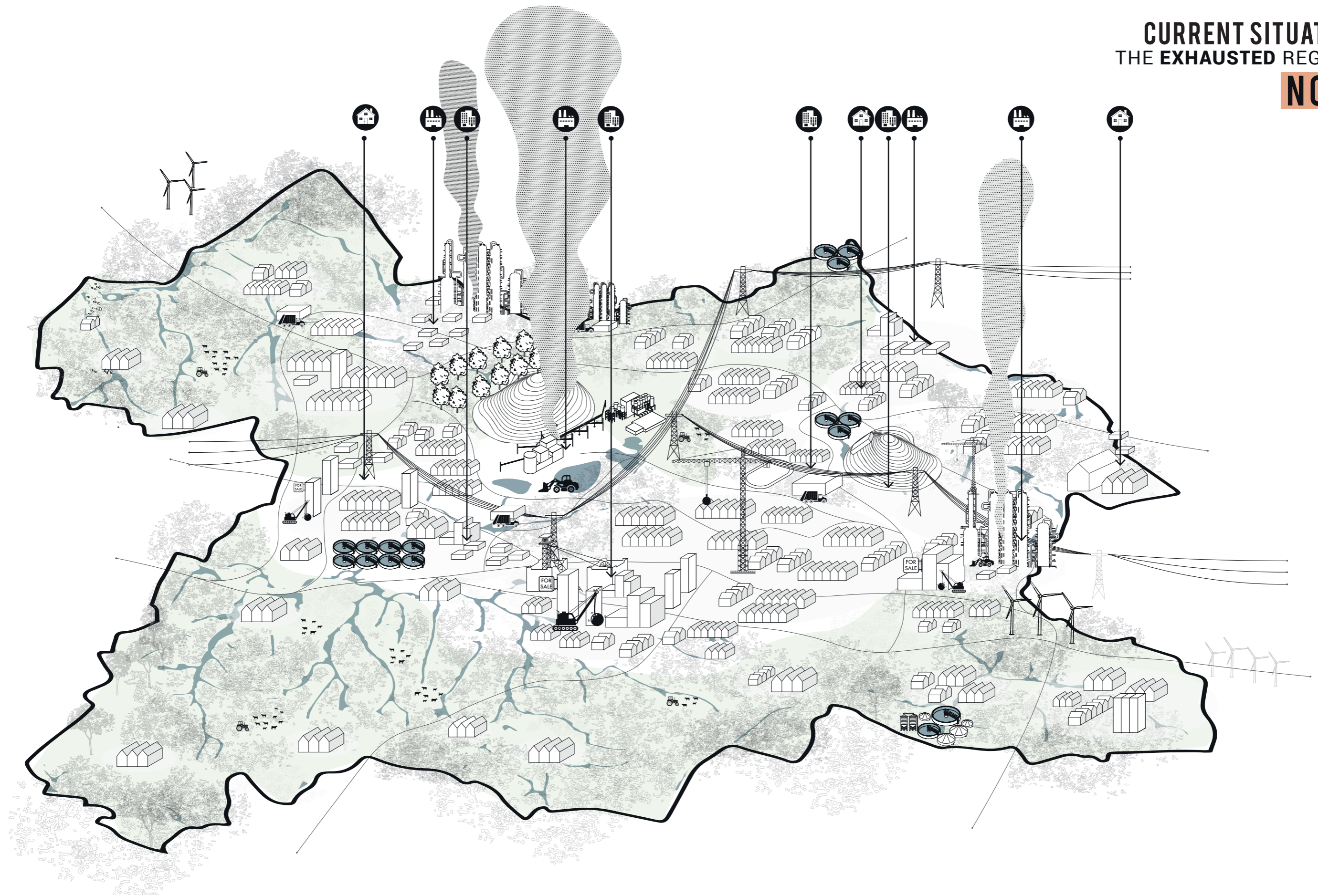


- Heritage mining past
- Former mining industry
- Living area
- Fragmented nature
- Roads




The mining industry disappeared as quickly as it emerged. Due to the large-scale introduction of natural gas and the increasing labour costs, the viability of the mines decreased. In 1965 the government decided to close the mines and return the landscape to grassland. After closing the mines in 1974 the region underwent an unprecedented redevelopment program ('from black to green'). To this day only a hand full of monuments memorises the mining industry.

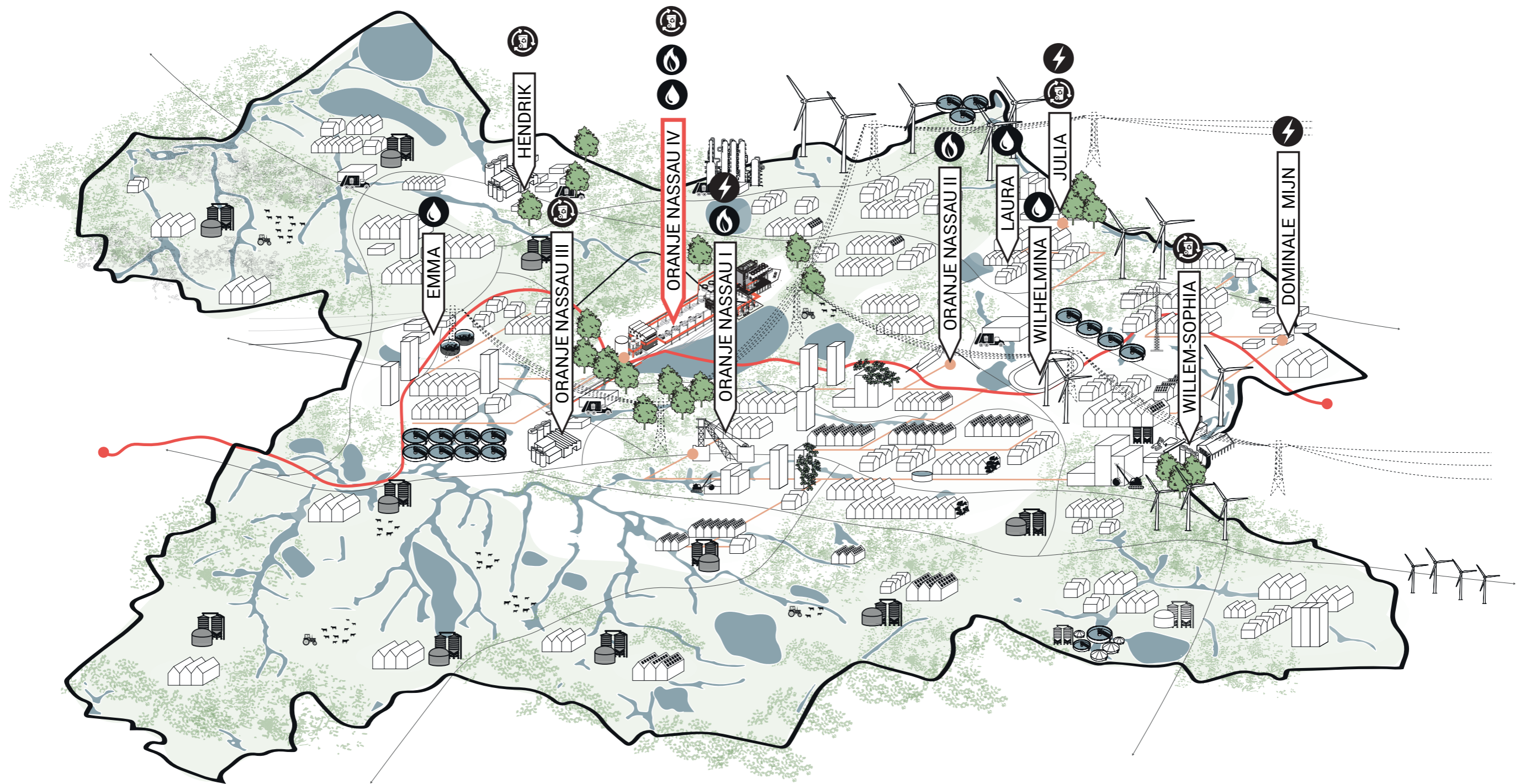
# CURRENT SITUATION THE EXHAUSTED REGION

## NOW



With the disappearance of the mining industry in 1974 Parkstad is now suffering from environmental, economical and social issues such as changing demography, unemployment, low education levels, high vacancy rates, identity loss and a lack of social cohesion. The region lives by harvesting partly the productivity of the surrounding territory. A linear economy operates, lurching from resources to the next as each is gradually exhausted in turn.

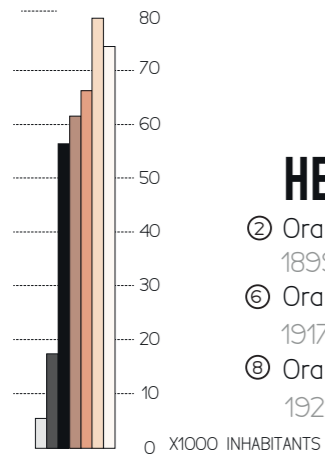
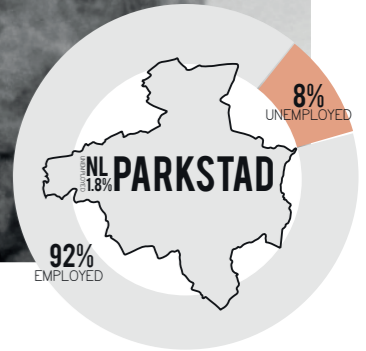
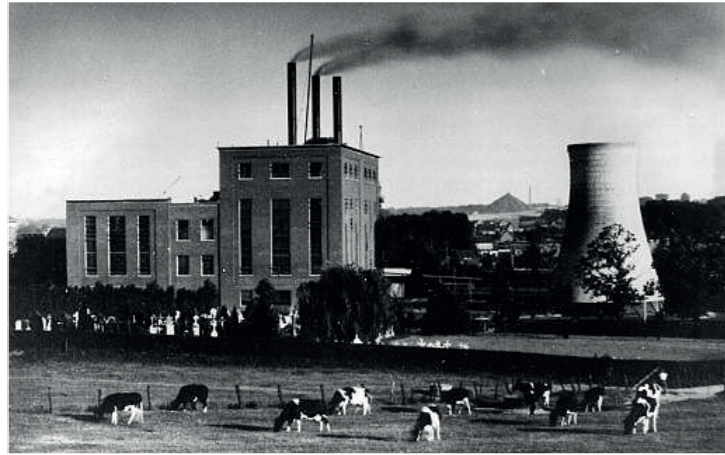
-  Living area
-  Industry
-  Offices



The region lives as a self-sufficient organism, independent of the surrounding territory. The fragmented landscape and the former mining areas have a great potential to become self-sufficient. A low consumption, circular economy operates in which the perceived material needs of people are greatly reduced. The forgotten mining zones have an inherent value to the communities that occupy them. Power is local and efficiency in material sense is extremely high, with all 'waste' being repurposed.

# CURRENT SITUATION

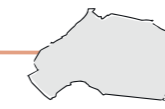
## PROBLEMS ABOVE GROUND



### ONDERBANKEN



### BRUNSSUM



### HEERLEN

- ② Oranje Nassau I 1899-1974
- ⑥ Oranje Nassau III 1917-1974
- ⑧ Oranje Nassau IV 1928-1974



### LANDGRAAF

- ⑩ Emma 1913-1973
- ⑪ Hendrik 1926-1967



### NUTH

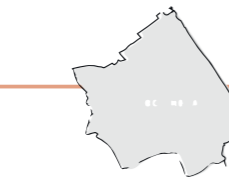


### KERKRADE

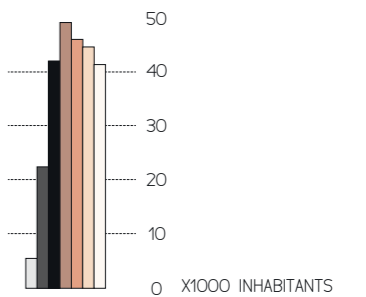
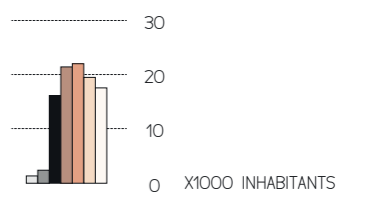
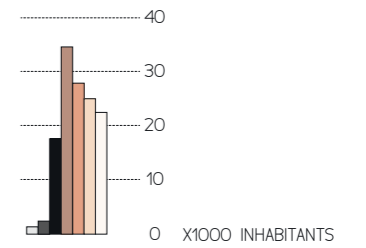
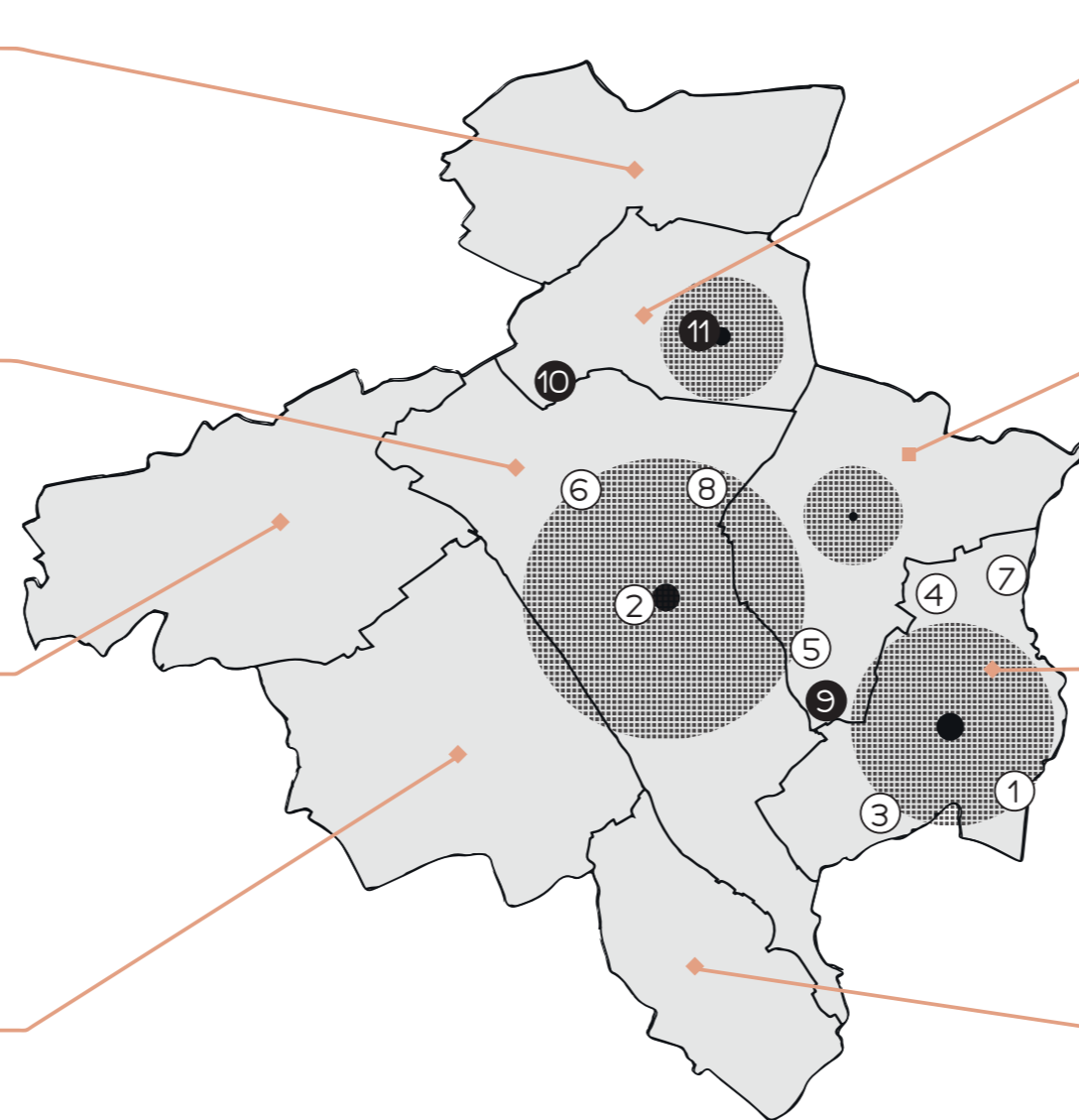
- ① Domaniële mijn 1726-1969
- ③ Willem-Sophia 1902-1970
- ④ Laura 1906-1974
- ⑦ Julia 1927-1970



### VOERENDAAL



### SIMPELVELD

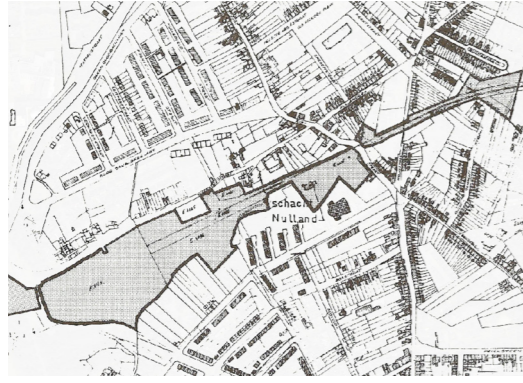


Legend for population growth charts: 1875 (lightest), 1914, 1947, 1960, 1975, 2000, 2019 (darkest).

# CURRENT SITUATION

## TRANSFORMATION IN LAND USE

DOMINALE MIJN



ORANJE NASSAU I



WILLEM-SOPHIA



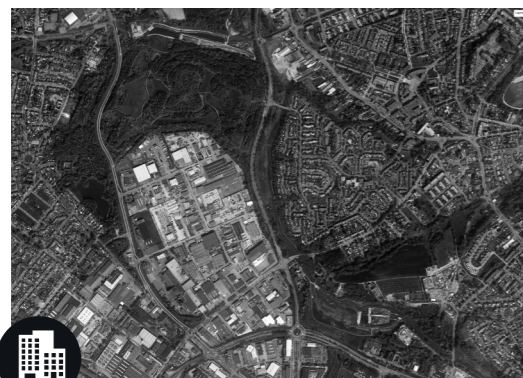
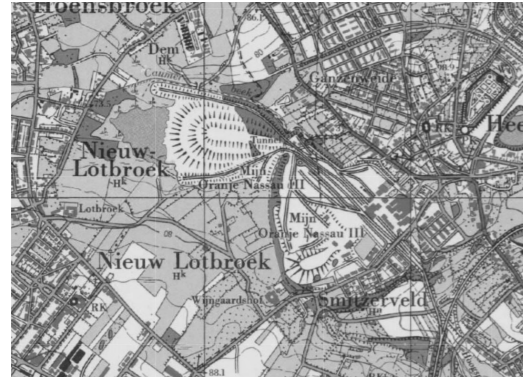
LAURA



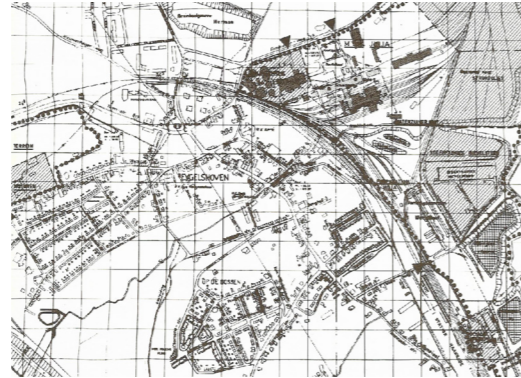
ORANJE NASSAU II



ORANJE NASSAU III



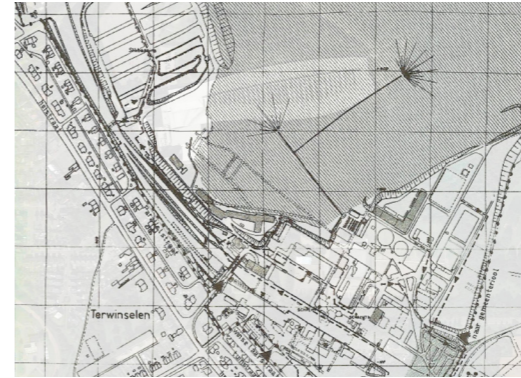
JULIA



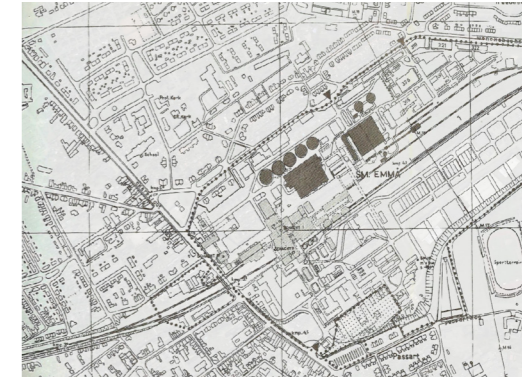
ORANJE NASSAU IV



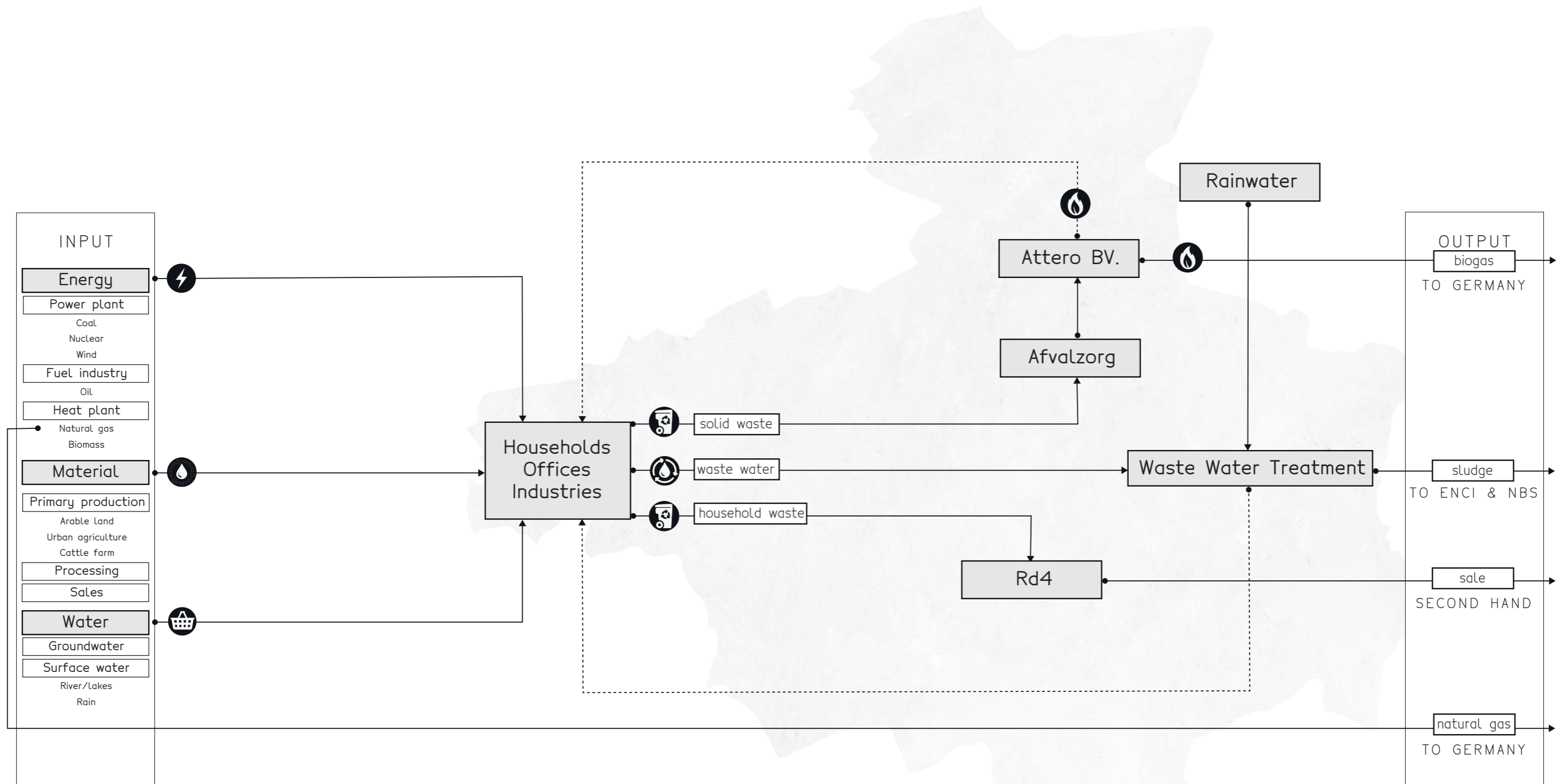
WILHEMINA



EMMA



# CURRENT SITUATION METABOLIC SCHEME



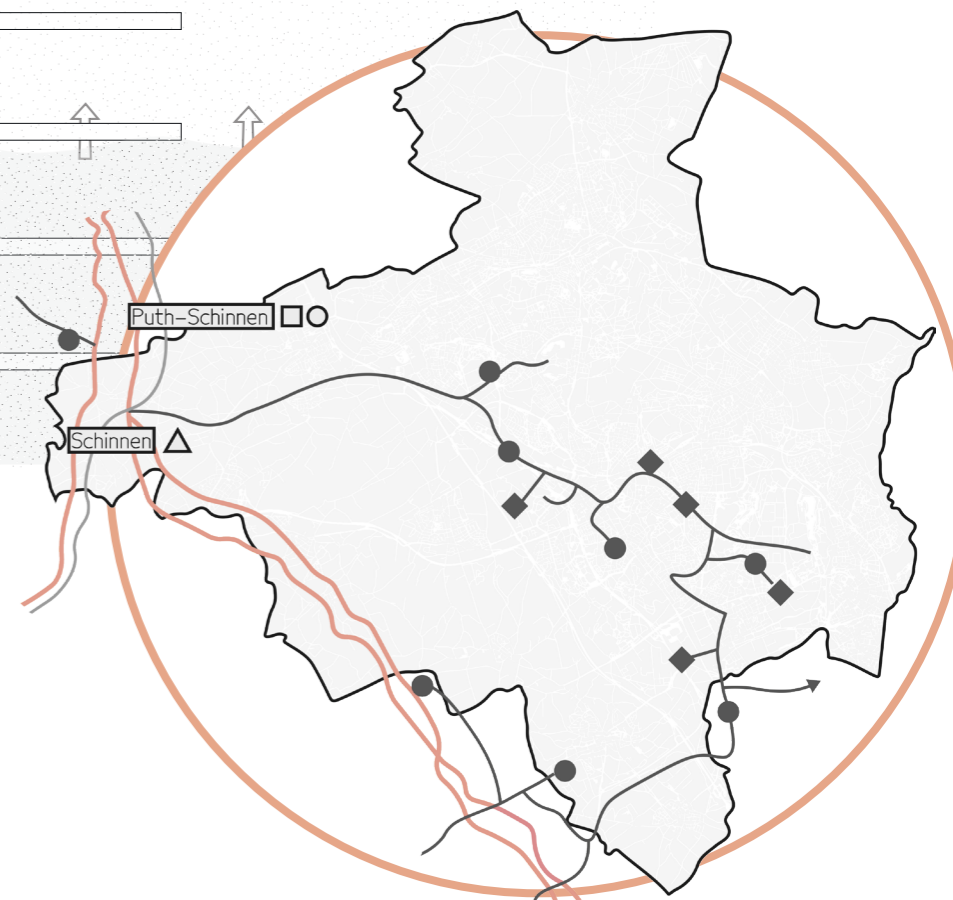
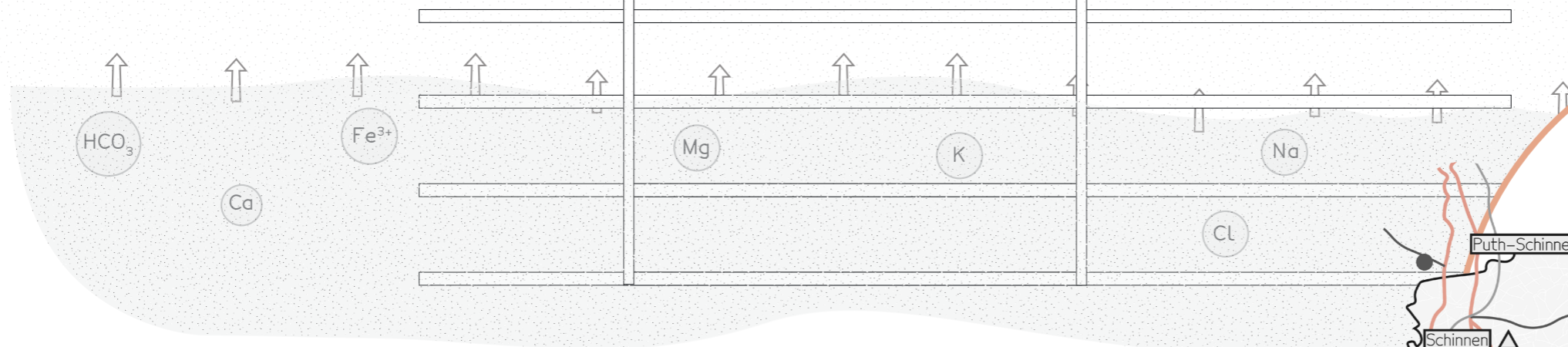
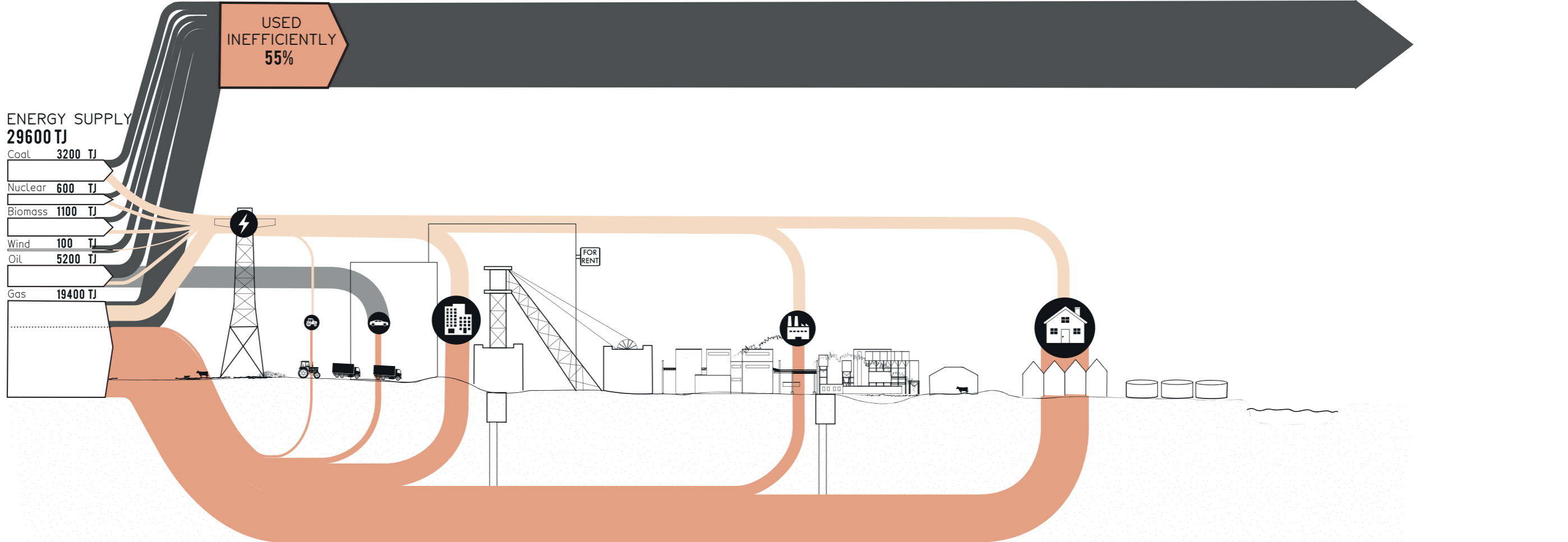
● TAKE ————— MAKE ————— DISPOSE —————>



ENERGY SUPPLY  
29600 TJ

- Coal 3200 TJ
- Nuclear 600 TJ
- Biomass 1100 TJ
- Wind 100 TJ
- Oil 5200 TJ
- Gas 19400 TJ

USED  
INEFFICIENTLY  
55%

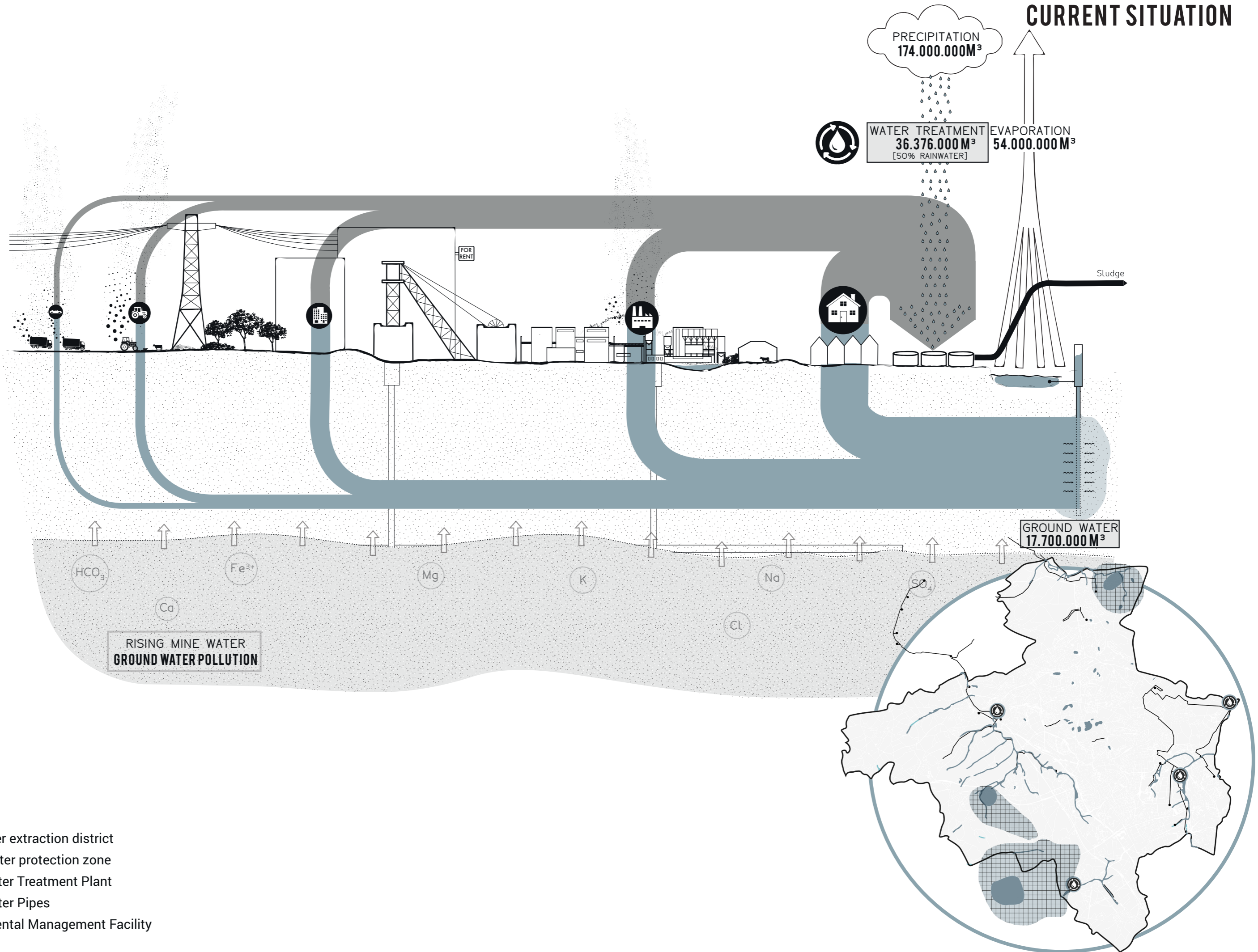


- Into public distribution system
- ◆ Direct exit to industrial customer
- G-Gas
- H-Gas
- Regional Pipe line
- Blending station
- △ Metering/regulation station
- Compressor station





# CURRENT SITUATION



# CURRENT SITUATION



Food  
166.000 TONNES

Plant growth  
5.000 TONNES

Consumption goods  
41.000 TONNES

Packaging  
30.000 TONNES

Construction  
16.800 TONNES

Clothes  
1.100 TONNES

Textile  
800 TONNES

Faeces  
134.000 TONNES

**BIODEGRADABLE**

Organic waste  
32.000 TONNES

Garden waste  
4.400 TONNES

Soil  
650 TONNES

**NON-BIODEGRADABLE**

Residual waste  
38.500 TONNES

Paper/cardboard  
15.200 TONNES

Mixed plastic  
6.500 TONNES

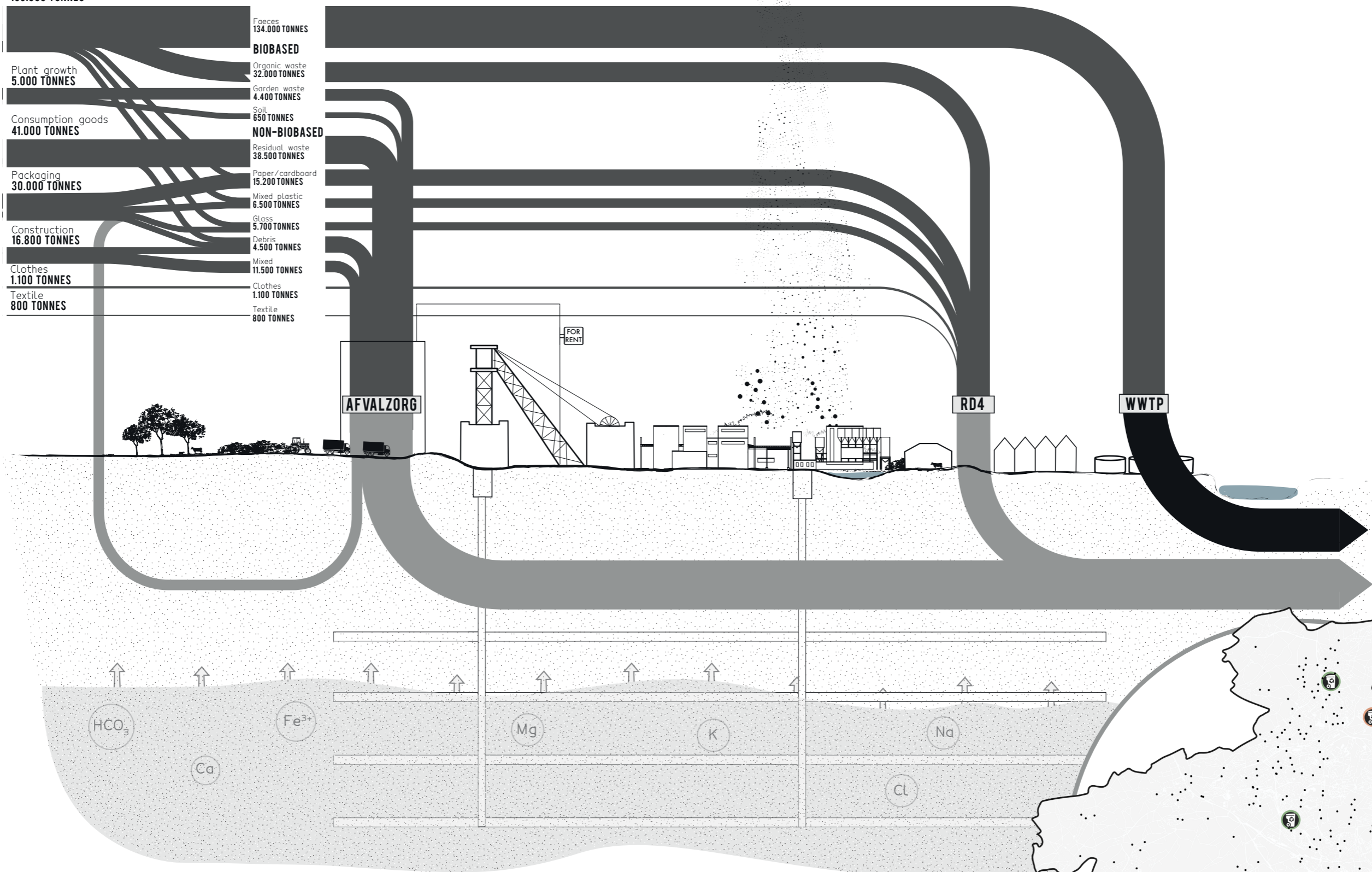
Glass  
5.700 TONNES

Debris  
4.500 TONNES

Mixed  
11.500 TONNES

Clothes  
1.100 TONNES

Textile  
800 TONNES



Environmental Park Rd4



Environmental Park Afvalzorg

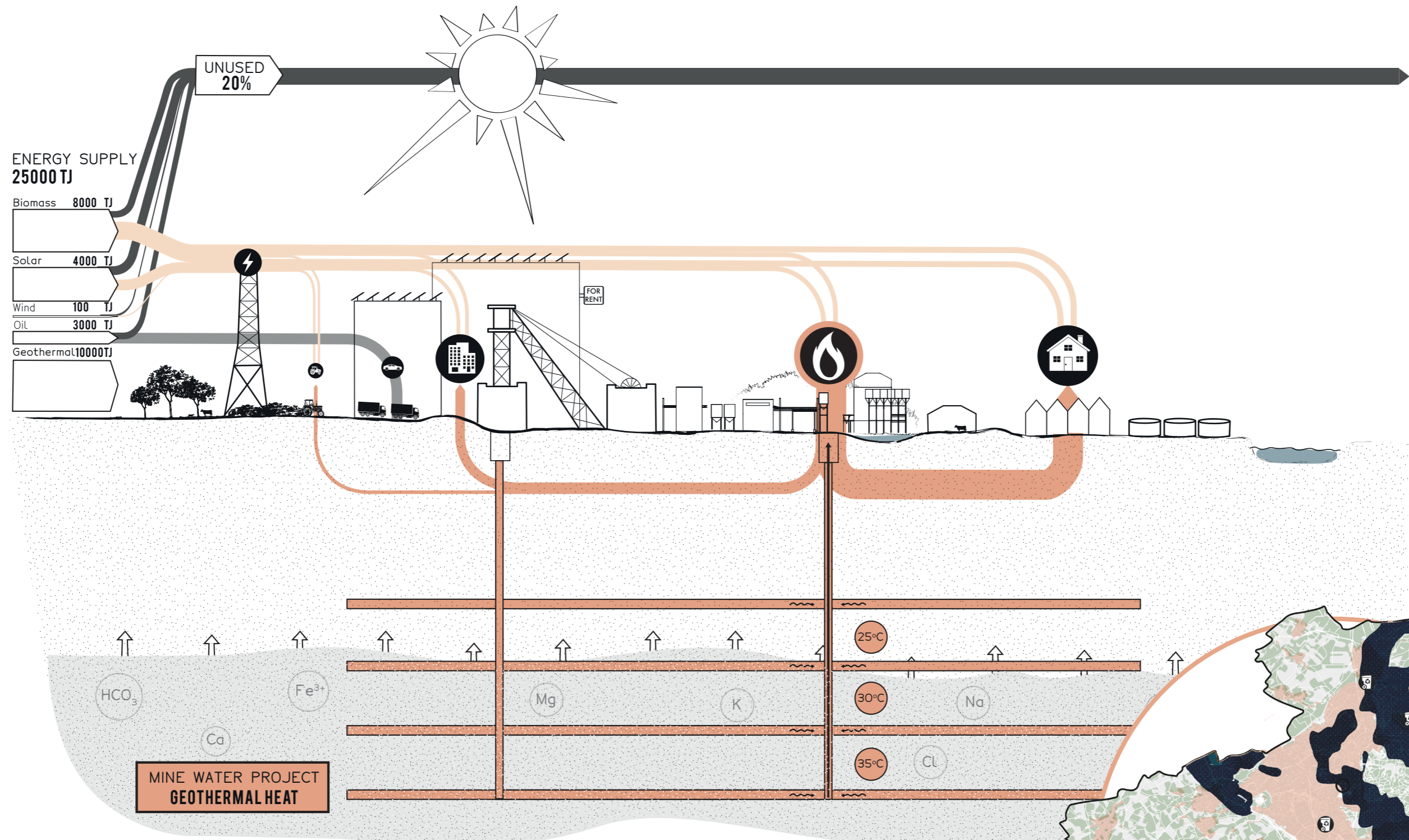


Waste to energy A ttero B.V.

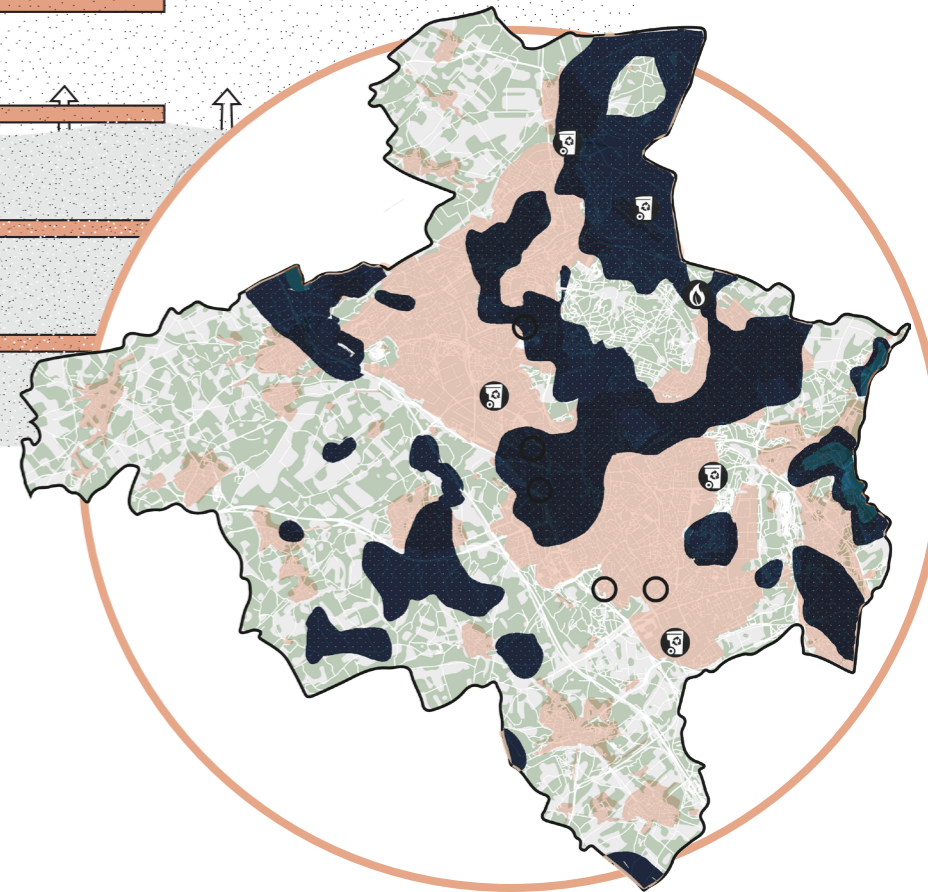


Waste containers

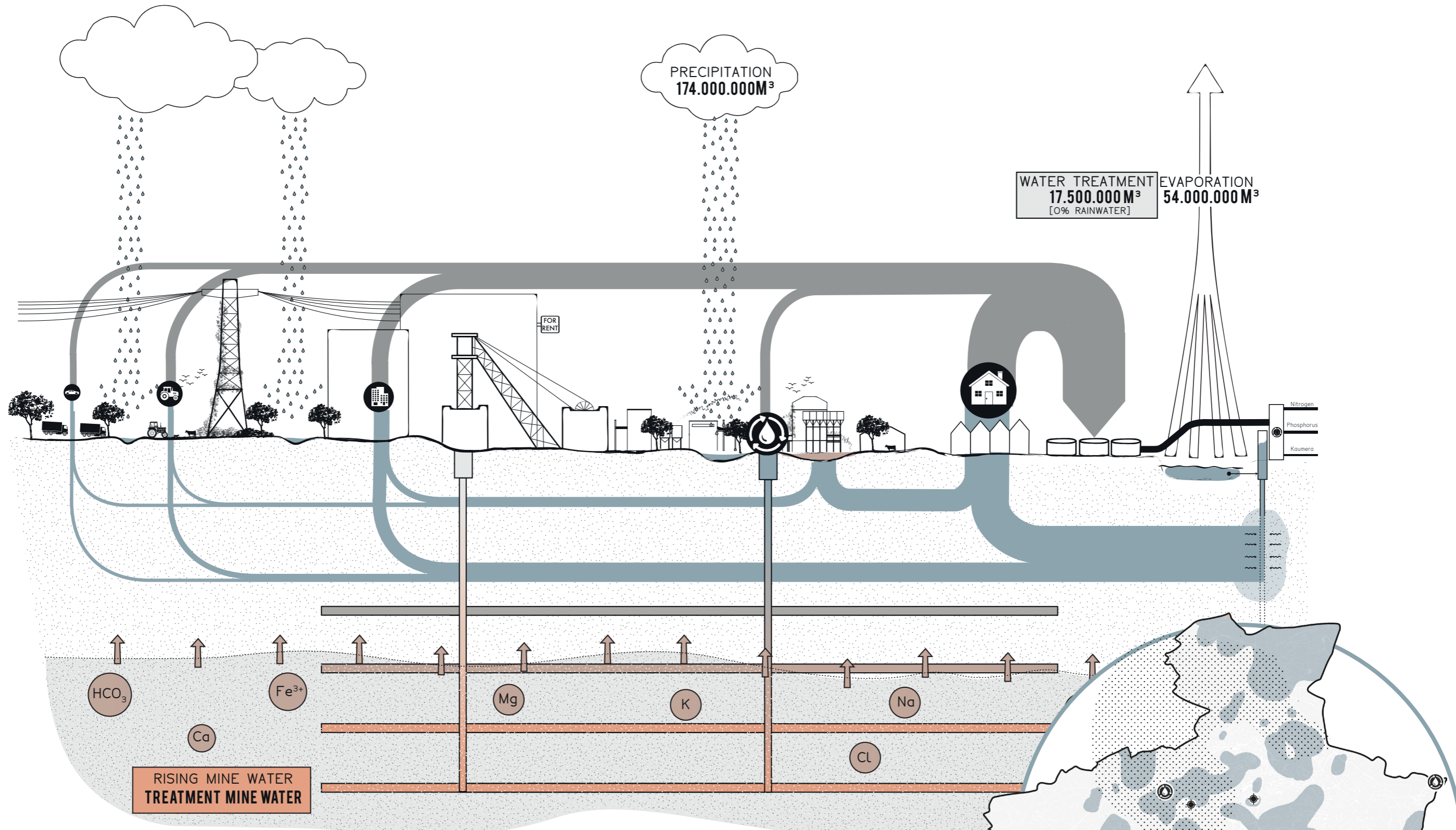
- Organic waste
- Cardboard
- Glass
- Textile
- Plastic









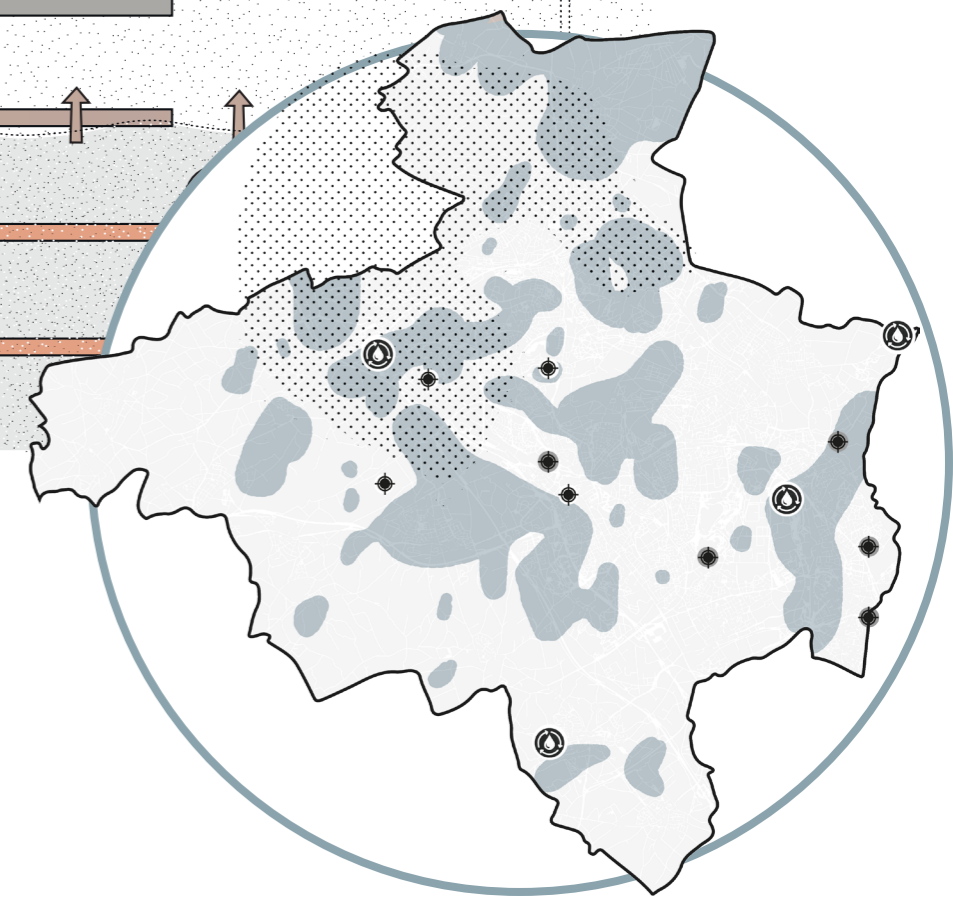
- Geothermal heat  
(2,5 TJ/ha/year)
- Biogas  
(0,5 TJ/ha/year)
- Solar energy  
(2.950.000 TJ/ha/year)
- District heating
- ♻️ Waste treatment facility



# FUTURE SCENARIO



-  Buffering capacity for water
-  Waste water treatment facility
-  New Monitoring points
-  Existing Monitoring points
-  Potential risk changing ground water quality
-  Former mining area



# FUTURE SCENARIO



Food  
166.000 TONNES

Plant growth  
5.000 TONNES

Consumption goods  
41.000 TONNES

Packaging  
30.000 TONNES

Construction  
16.800 TONNES

Clothes  
1.100 TONNES

Textile  
800 TONNES

Faeces  
134.000 TONNES

**BIODEGRADABLE**  
Organic waste  
32.000 TONNES

Garden waste  
4.400 TONNES

Soil  
650 TONNES

**NON-BIODEGRADABLE**  
Residual waste  
38.500 TONNES

Paper/cardboard  
15.200 TONNES

Mixed plastic  
6.500 TONNES

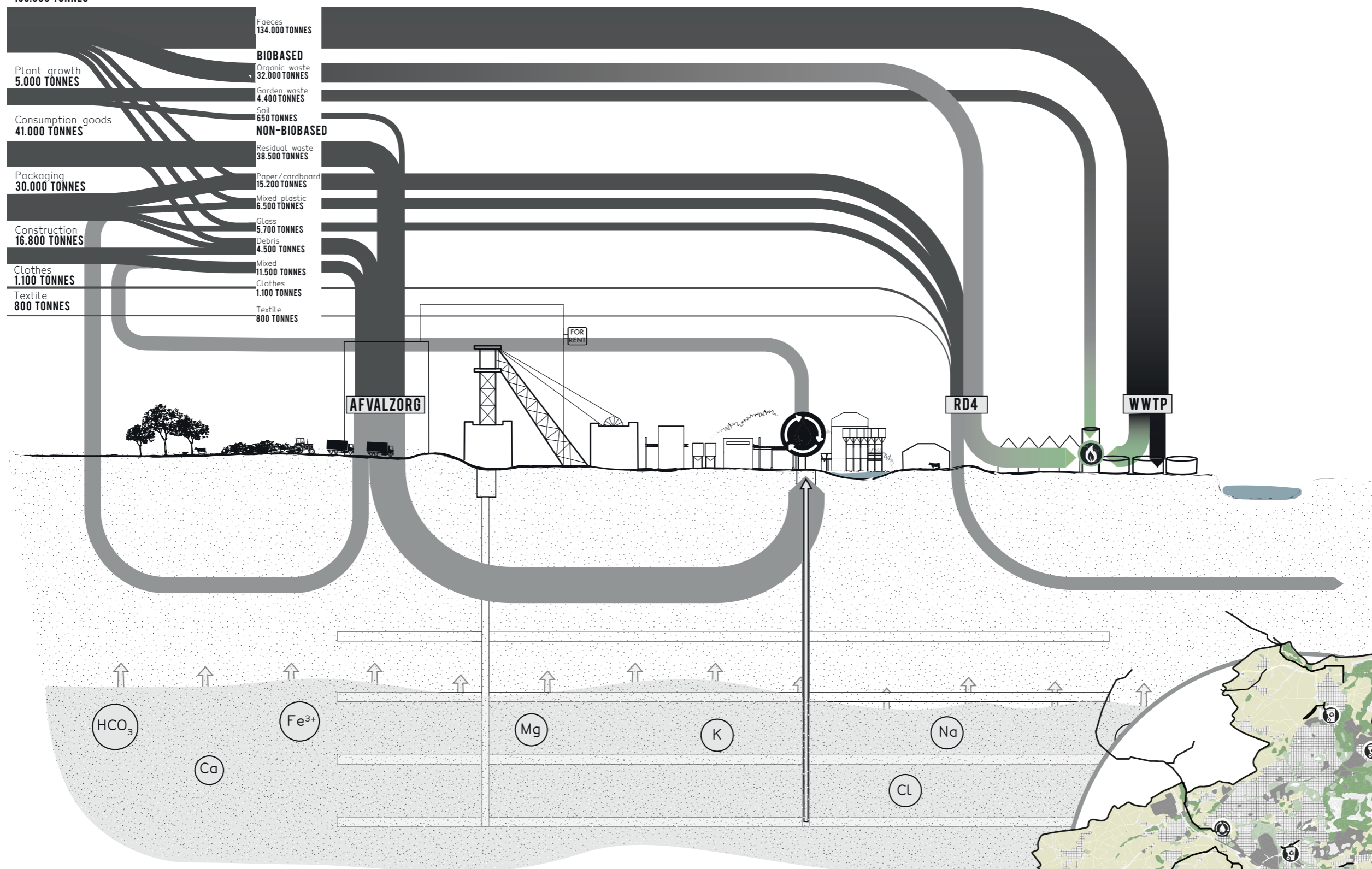
Glass  
5.700 TONNES

Debris  
4.500 TONNES

Mixed  
11.500 TONNES

Clothes  
1.100 TONNES

Textile  
800 TONNES



Environmental Park Rd4



Environmental Park Afvalzorg



Waste to energy A ttero B.V.



Waste Water Treatment Plant



Waste Water Pipes



Population Clusters



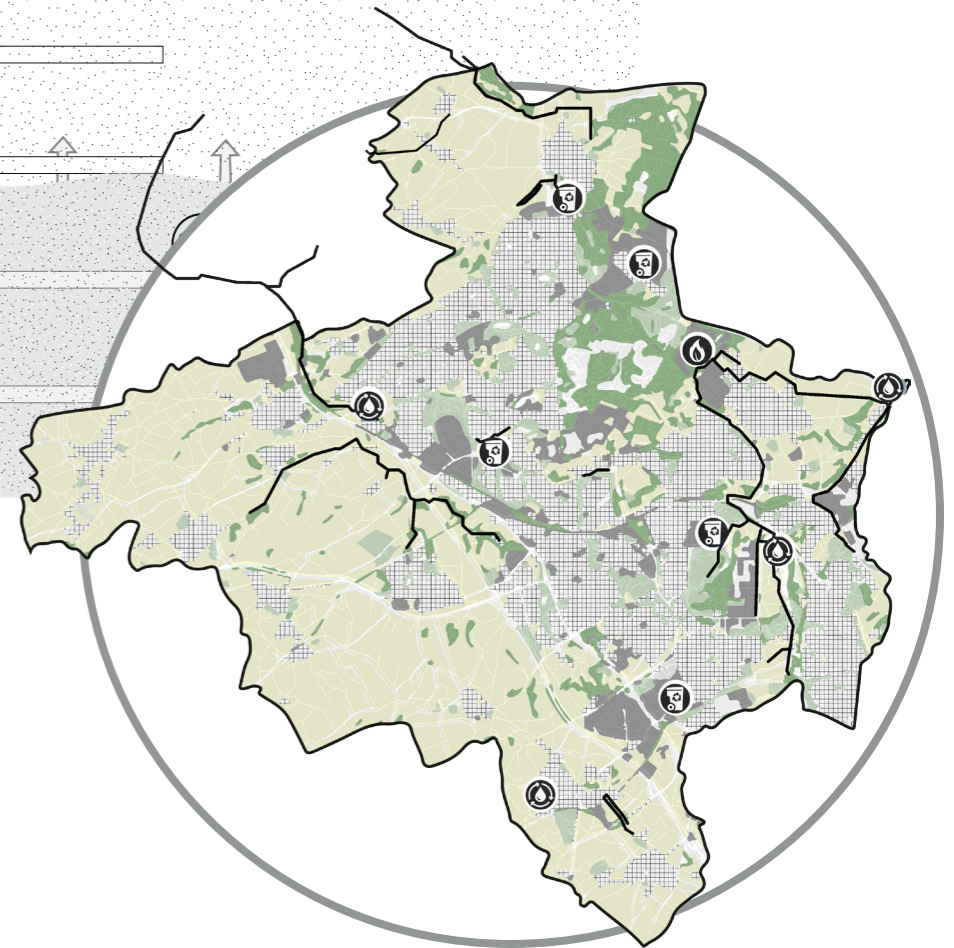
Business Park



Arable land



Forest

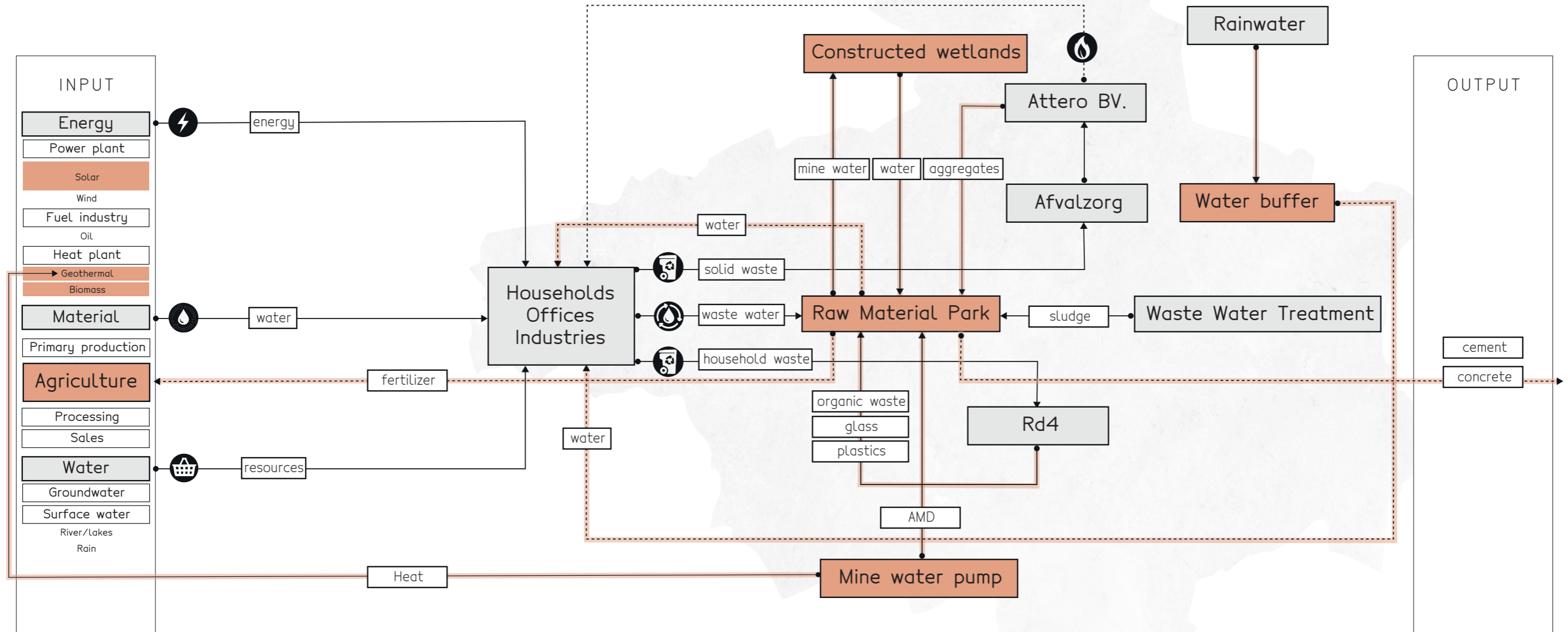


# CYCLIFIER

a way to identify a type of actor that improves the urban metabolic efficiency.

Jongert, J., Nelson, N. & Korevaar, G. (2015). *Cyclifiers: an investigation into actors that enable intra-urban metabolism*. Rotterdam, SuperUse, 1

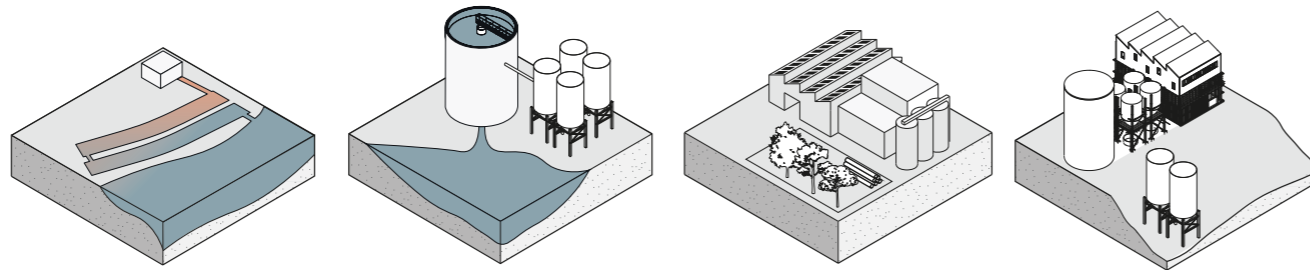
# FUTURE SCENARIO METABOLIC SCHEME





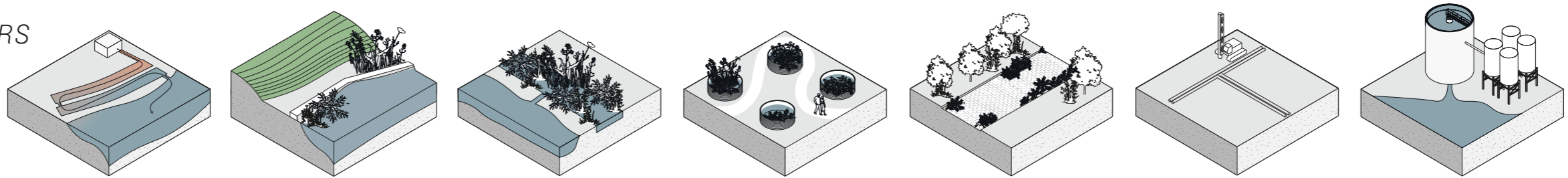
- ① MINE WATER - GEOTHERMAL ENERGY
- ② BIOGAS
- ③ SOLAR ENERGY
- ④ HEAT HUBS

## RECHANNEL ENERGY



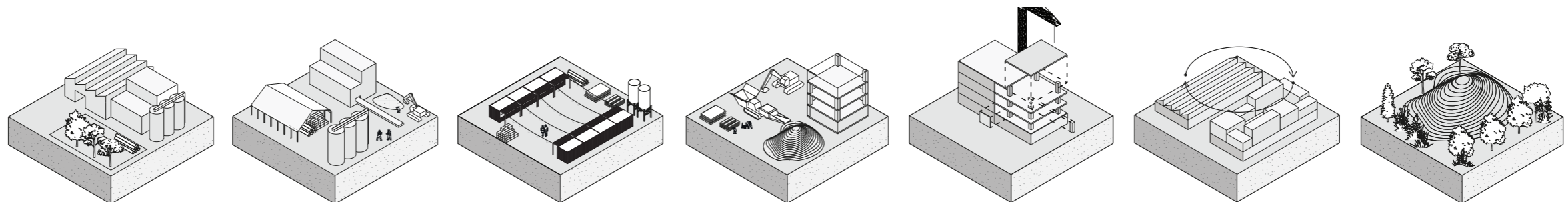
- ⑤ MINE WATER TREATMENT
- ⑥ CONSTRUCTED WETLANDS
- ⑦ HELOPHYTE FILTER
- ⑧ RAINWATER STORAGE
- ⑨ POROUS PAVEMENT
- ⑩ INFRASTRUCTURE ABOVE GROUND
- ⑪ UTILIZE SLUDGE

## CREATE WATER BUFFERS



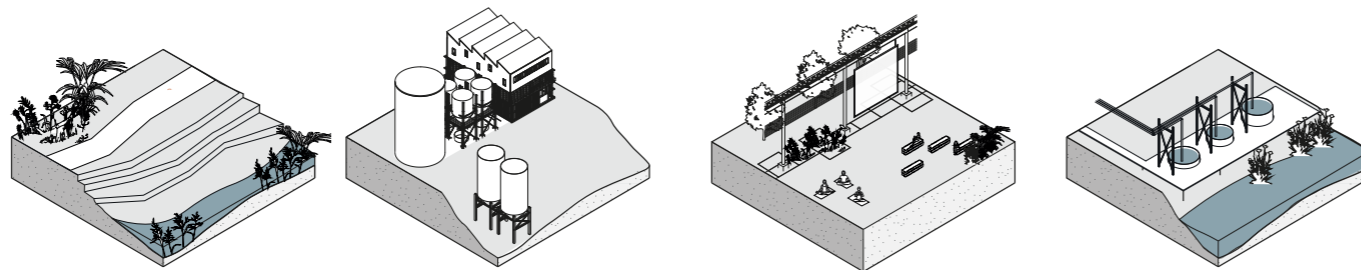
- ⑫ BUILDING LAB
- ⑬ MATERIAL STORAGE
- ⑭ MATERIAL MARKET
- ⑮ ON-SITE RECYCLING
- ⑯ DETACHABLY CONSTRUCTED
- ⑰ BUILDING TRANSFORMATION
- ⑱ LOCAL MATERIAL

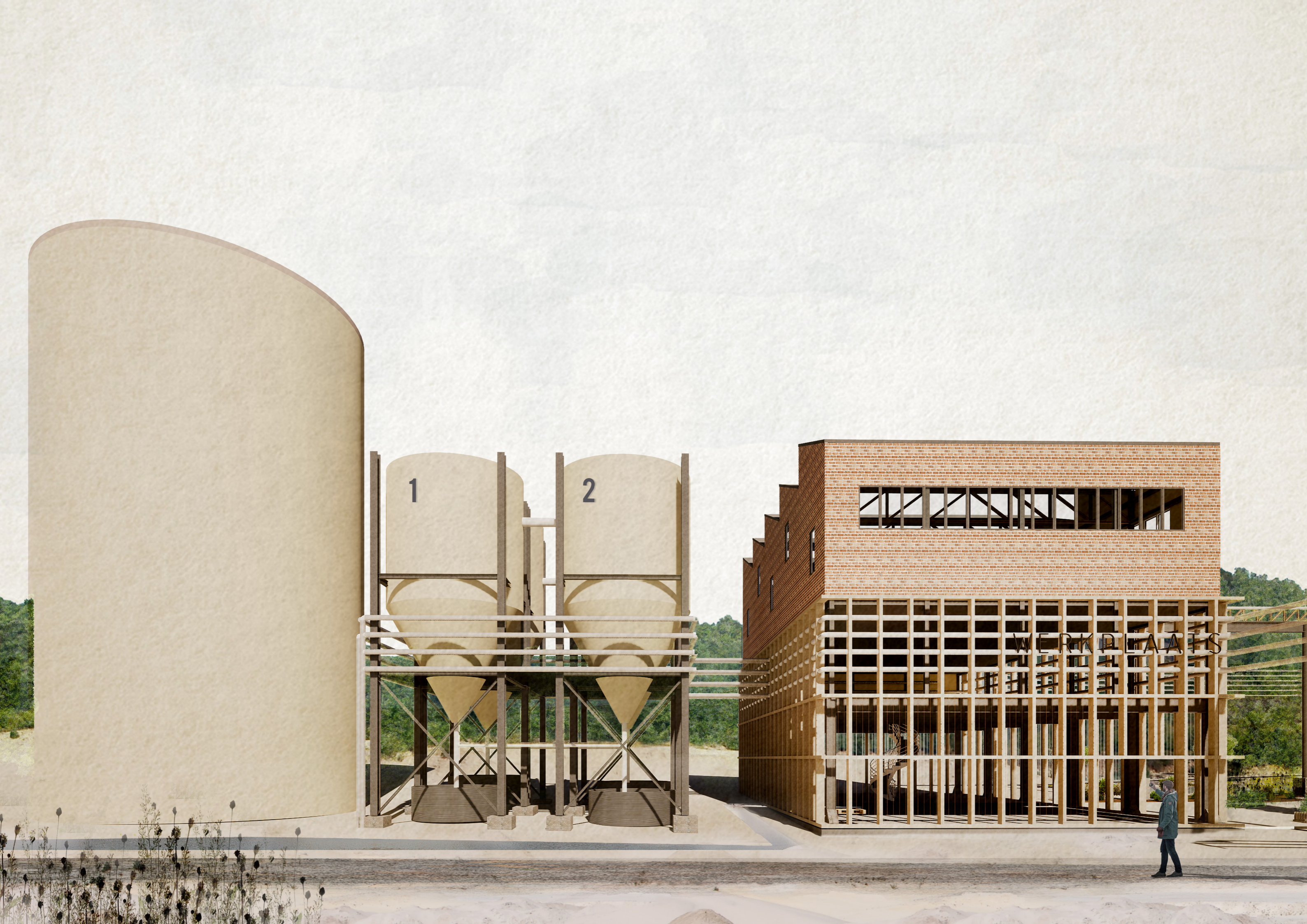
## COLLECT MATERIALS



- ⑲ BOARDWALK
- ⑳ INDUSTRIAL CHARACTER
- ㉑ DIVERSITY OF USE
- ㉒ NEW RECREATIONAL SCENARIO

## REVITALIZE PARKSTAD/PAST





1

2

WERKPLAATS





WORK PLANTS







DAMES

HEREN





LAMPENKAMER

