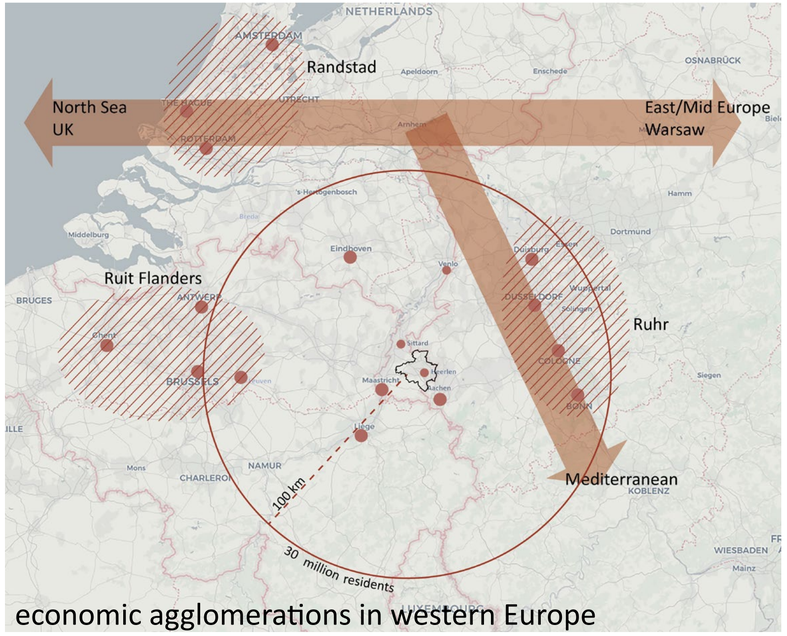
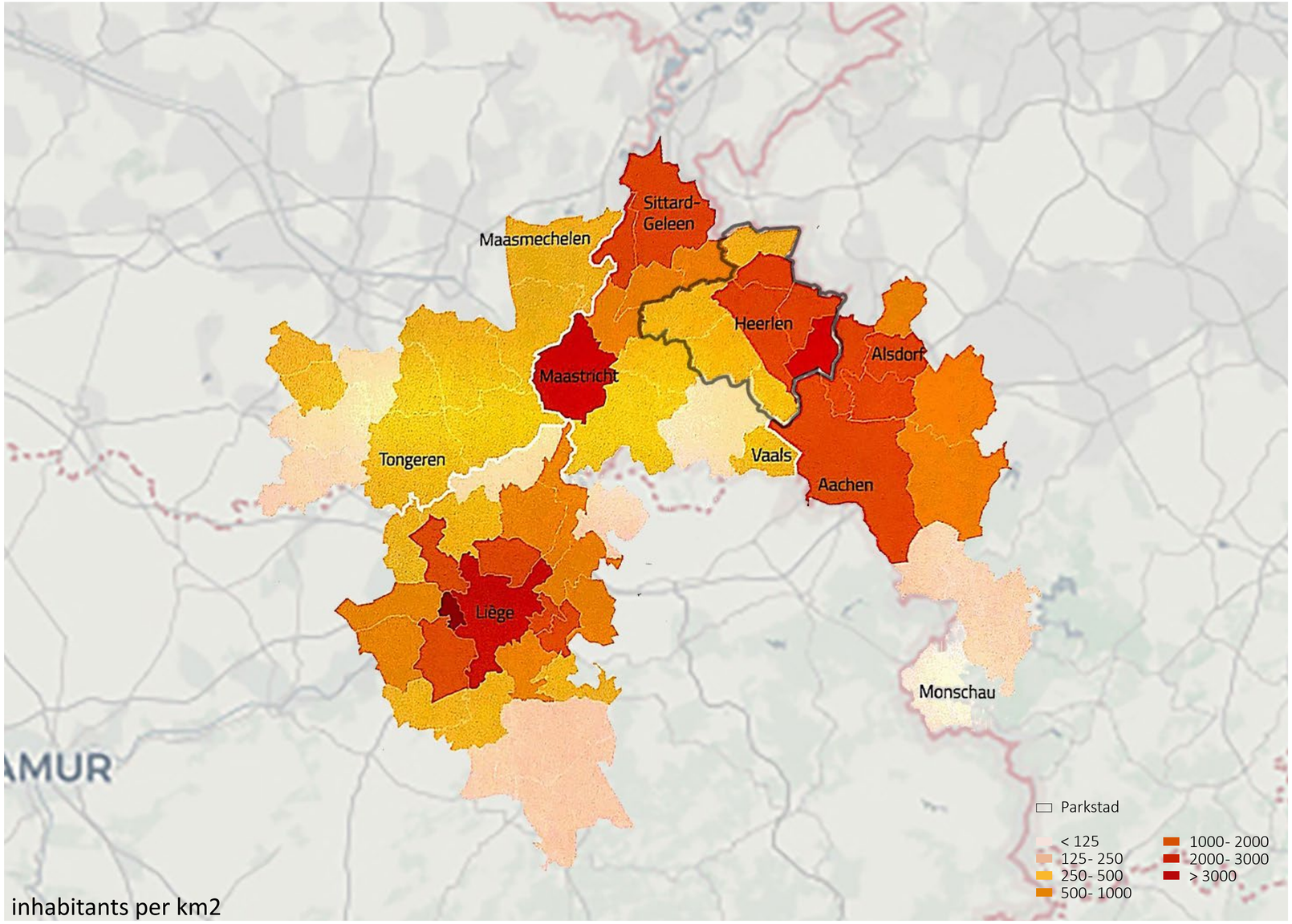
Adaptive reuse of landscape heritage: a promising future for improving elderly people's quality of life in shrinking area

Yueqi Tang
P5 presentation
Landscape Architecture
30.06.2020

Shrinkage - a global problem

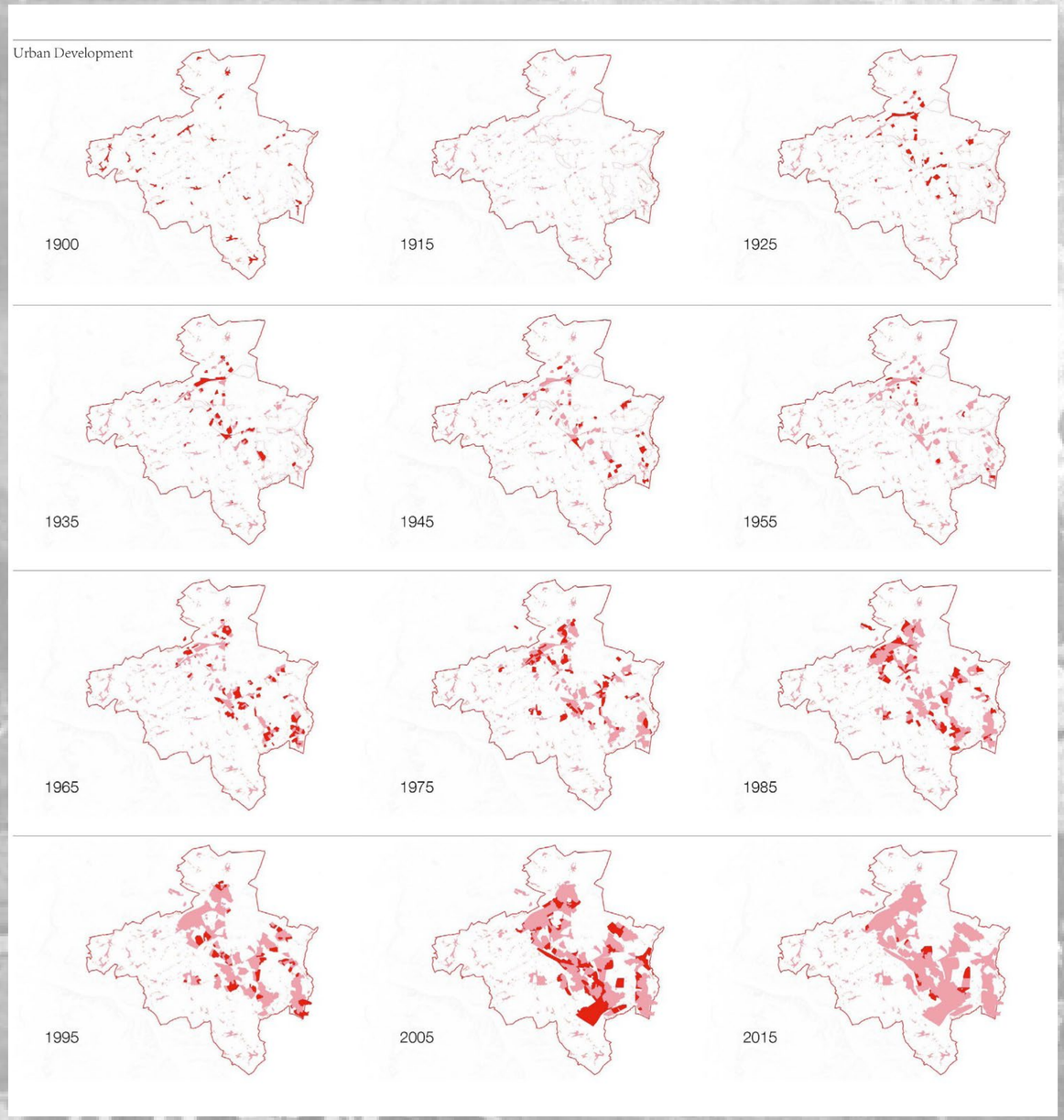


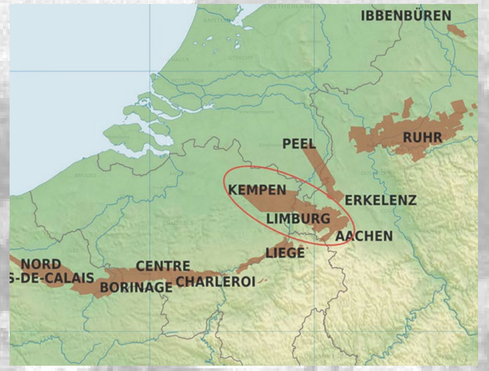
economic agglomerations in western Europe



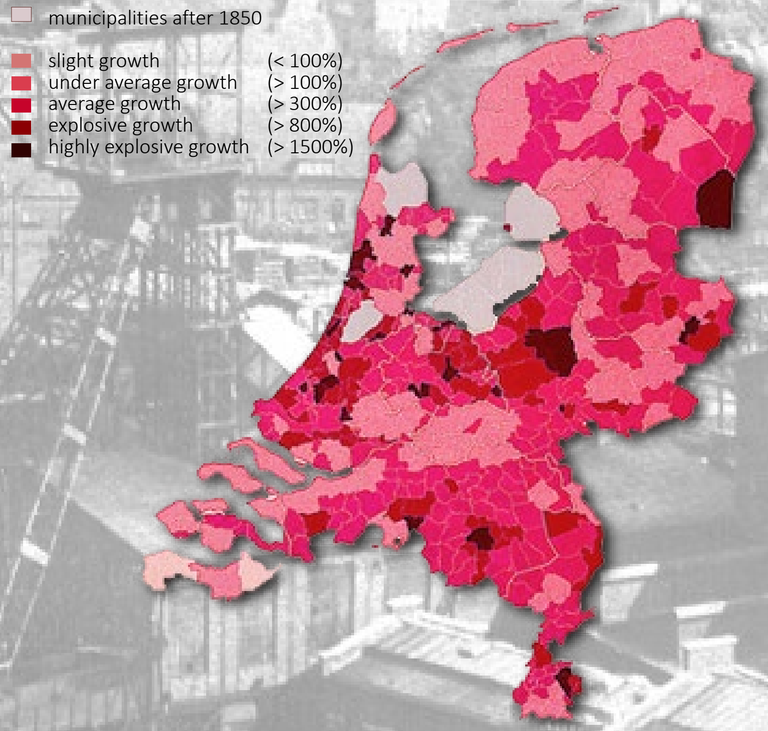
inhabitants per km2

phenomenon of shrinkage





population growth in 1850 - 1999



source: Bevolkingsatlas van Nederland

phenomenon of shrinkage

1967
apprx. 28,000 direct jobs were lost, the remaining 17,000 workers waiting for employment.

1967
6 of the twelve coal mines closed

1971
the number of commuters to Belgium and Germany rose to 17,000

1971
mine closure ON II

1973
mine closure ON III

1974
only 14,000 new jobs were created in South Limburg, lower than expected

1974
last load of coal was brought up from ON I

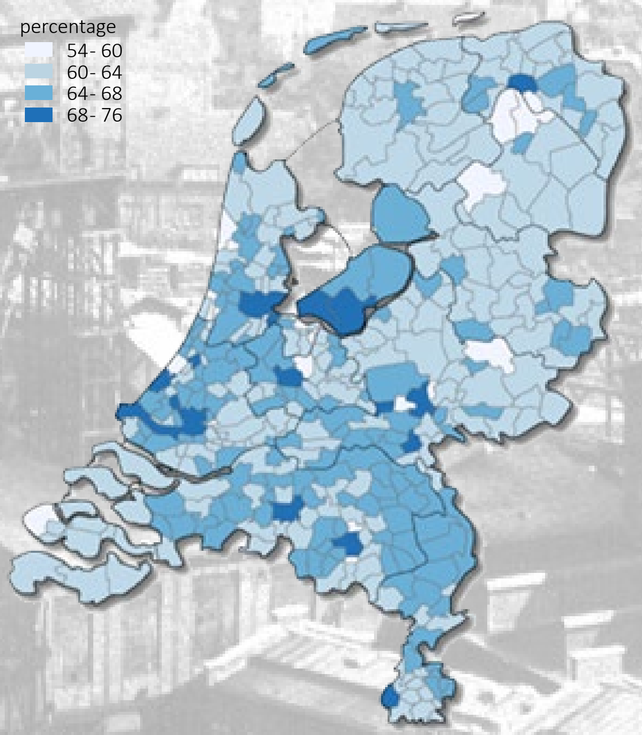
1978
8 % of the workforce was unemployed, twice of the national figure

1980
unemployment reached post-war record

1985
unemployment for men was decreasing

1989
unemployment was slowly but surely being reduced

percentage of labor force 2015



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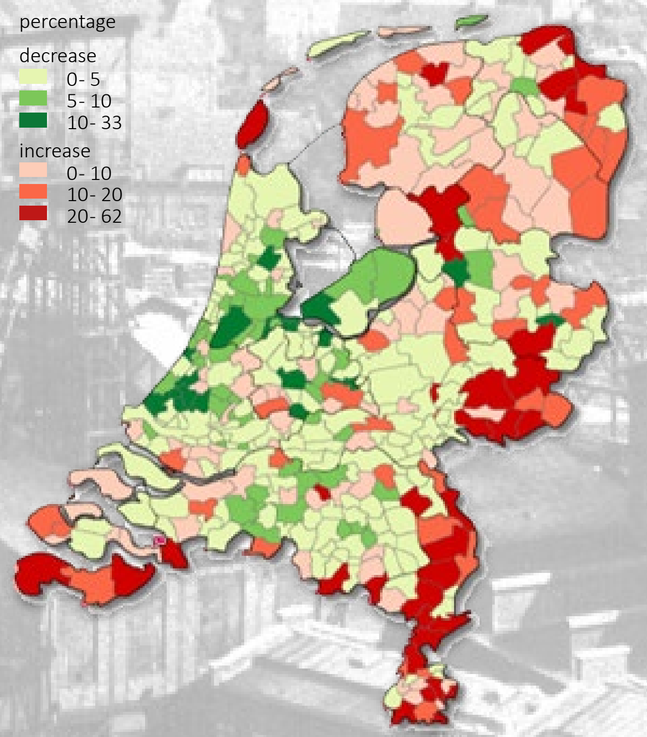
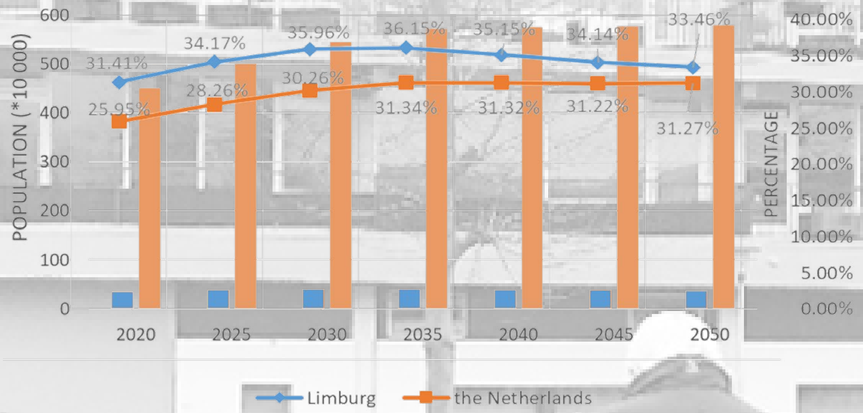
forecast population growth 2040

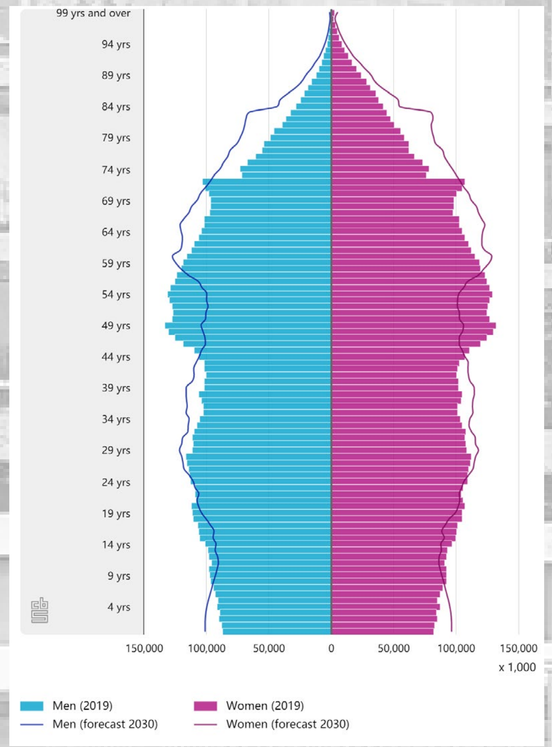


phenomenon of shrinkage



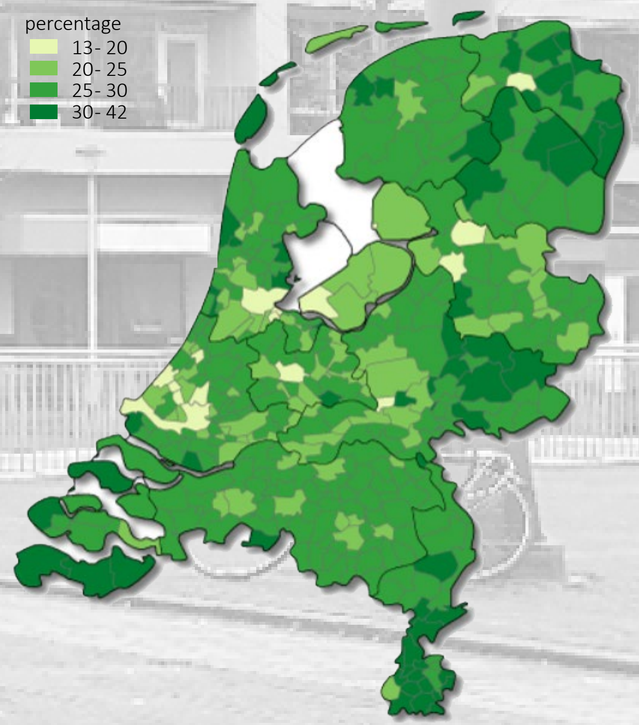
forecast of population & percentage of 65+

source: CBS, 2018



age composition of NL, 1 Jan.2019 and 2030

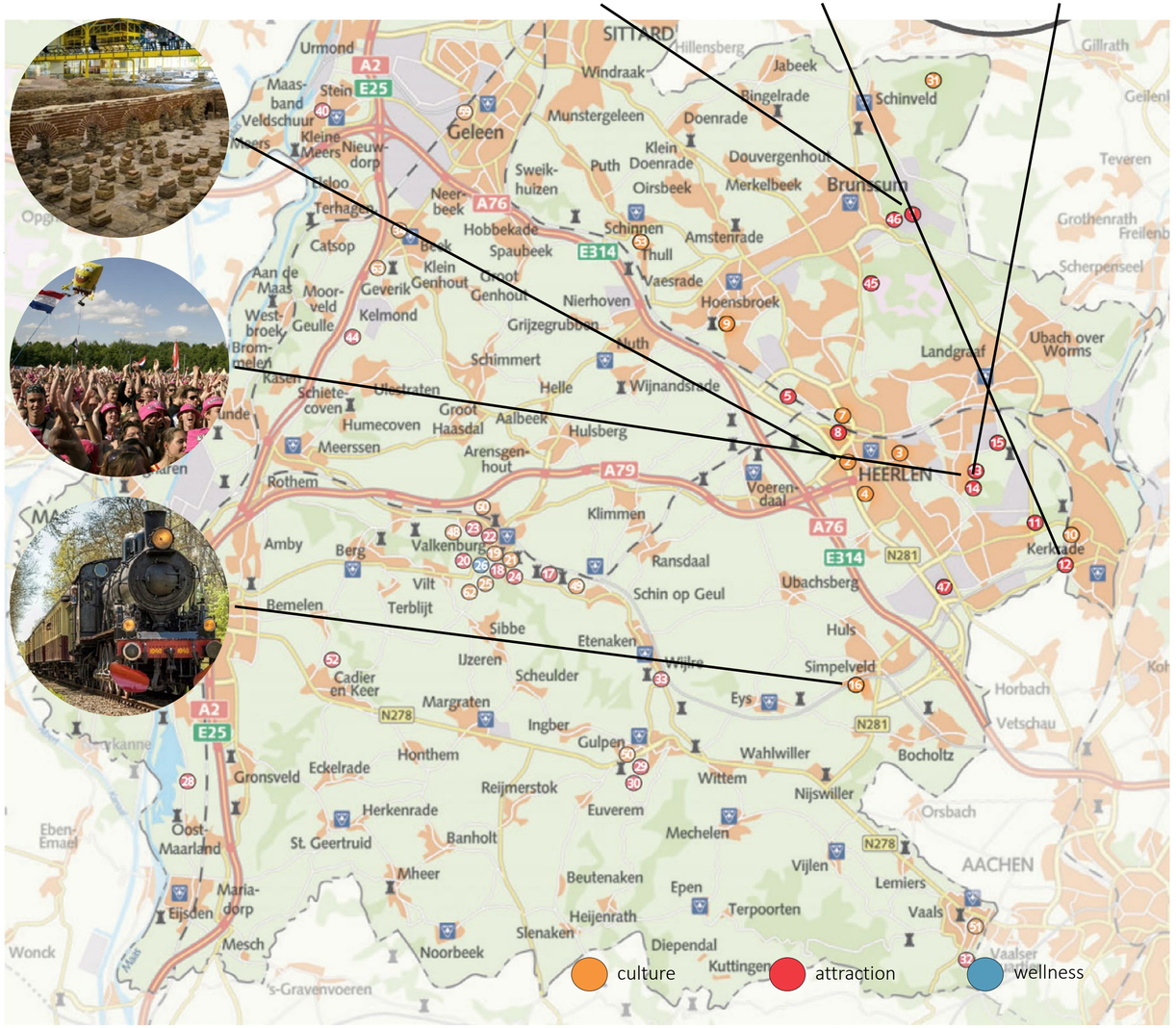
population of 65+ growth 2012-2030 prediction



phenomenon of shrinkage

Relative long-term vacancy, 2013

New focus of economy - Leisure



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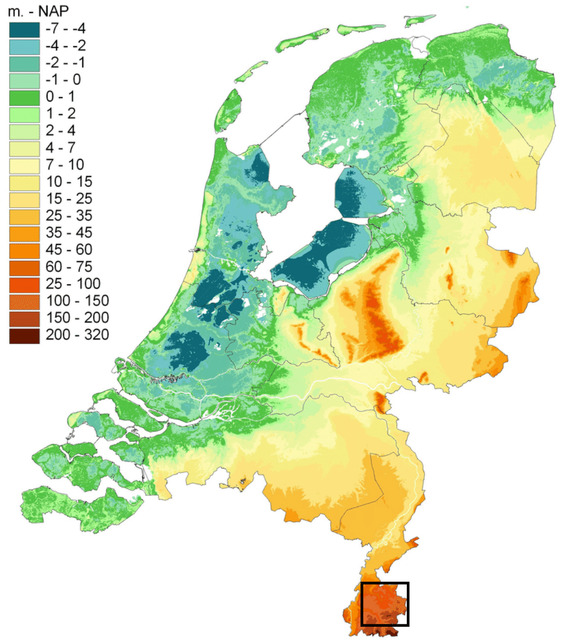
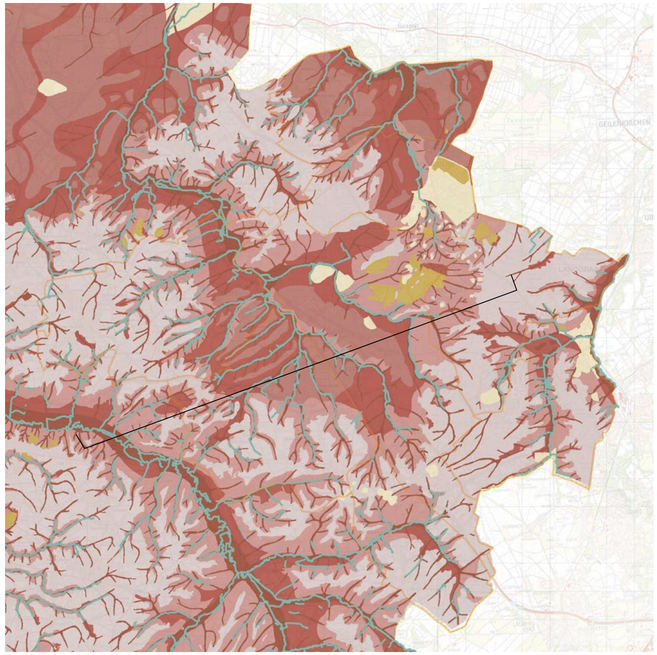
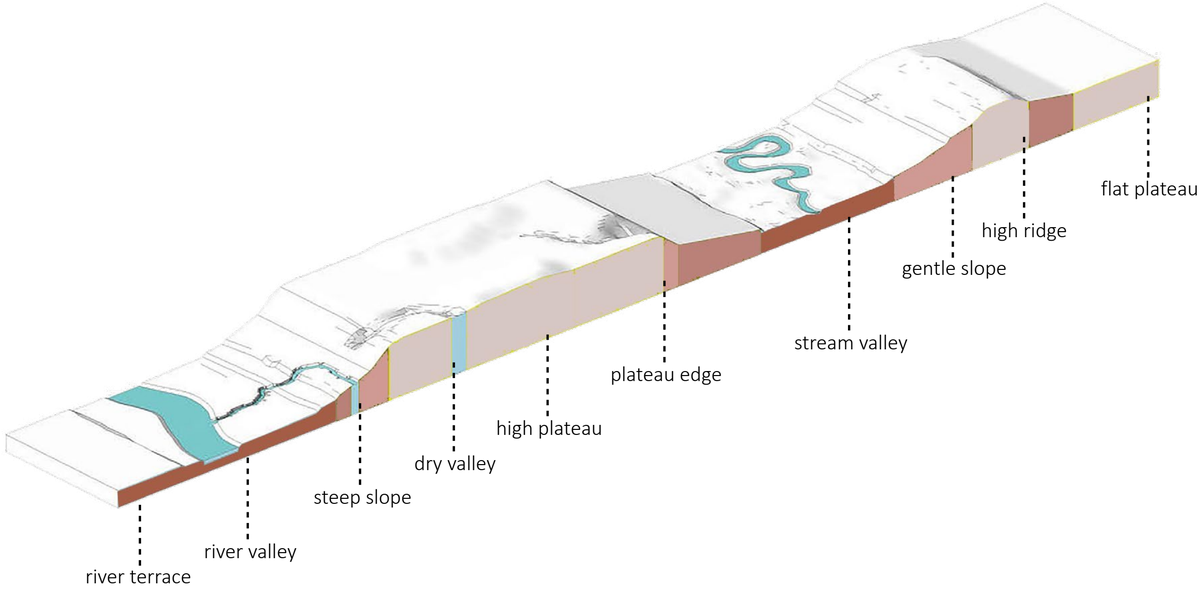


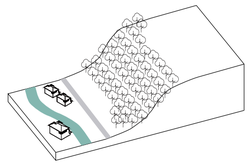
Landscape condition - natural precondition

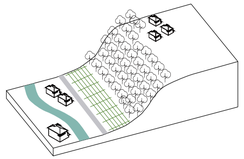


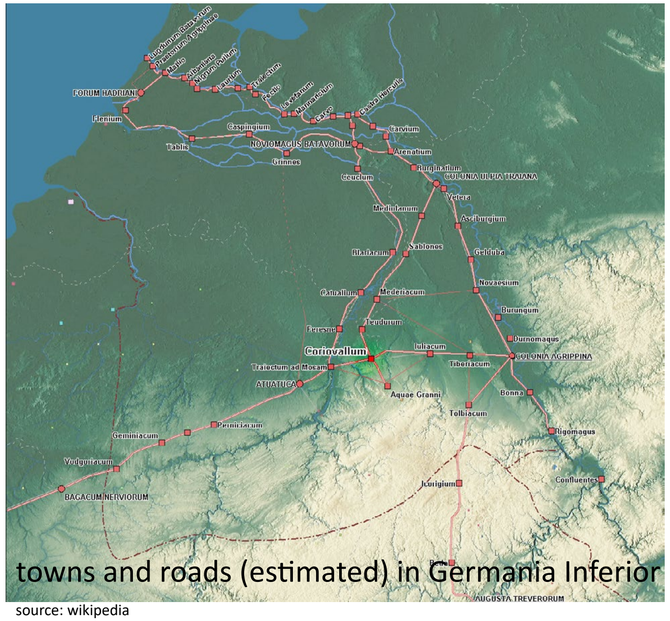
valley floor
slope less than 4°
intermediate terrace
slope more than 4°
plateau
isolated hill on plateau
quarry



Landscape condition - settlement

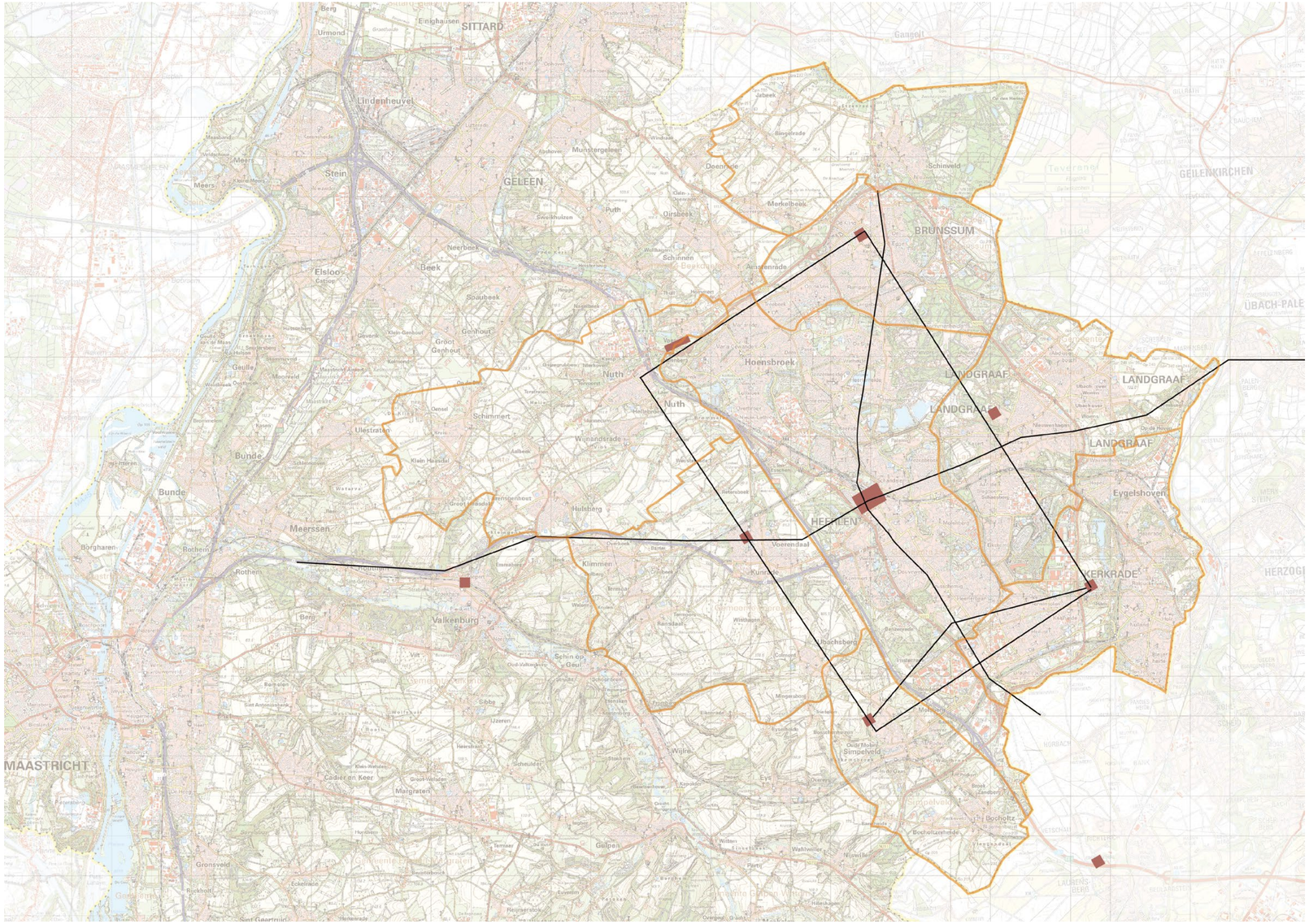






towns and roads (estimated) in Germania Inferior

source: wikipedia



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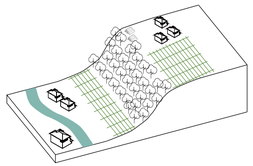
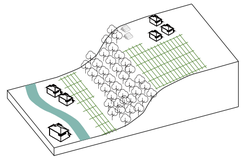
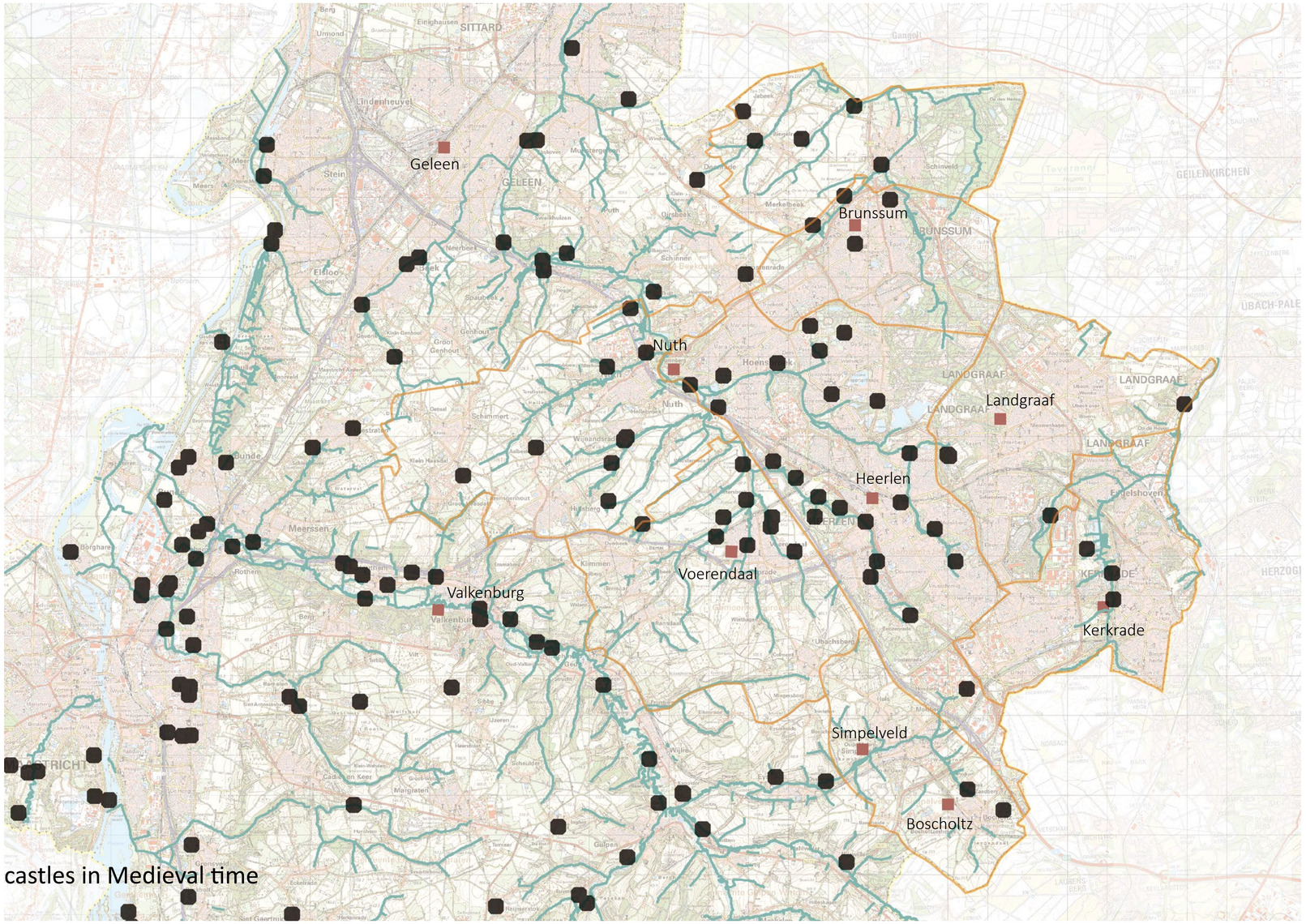


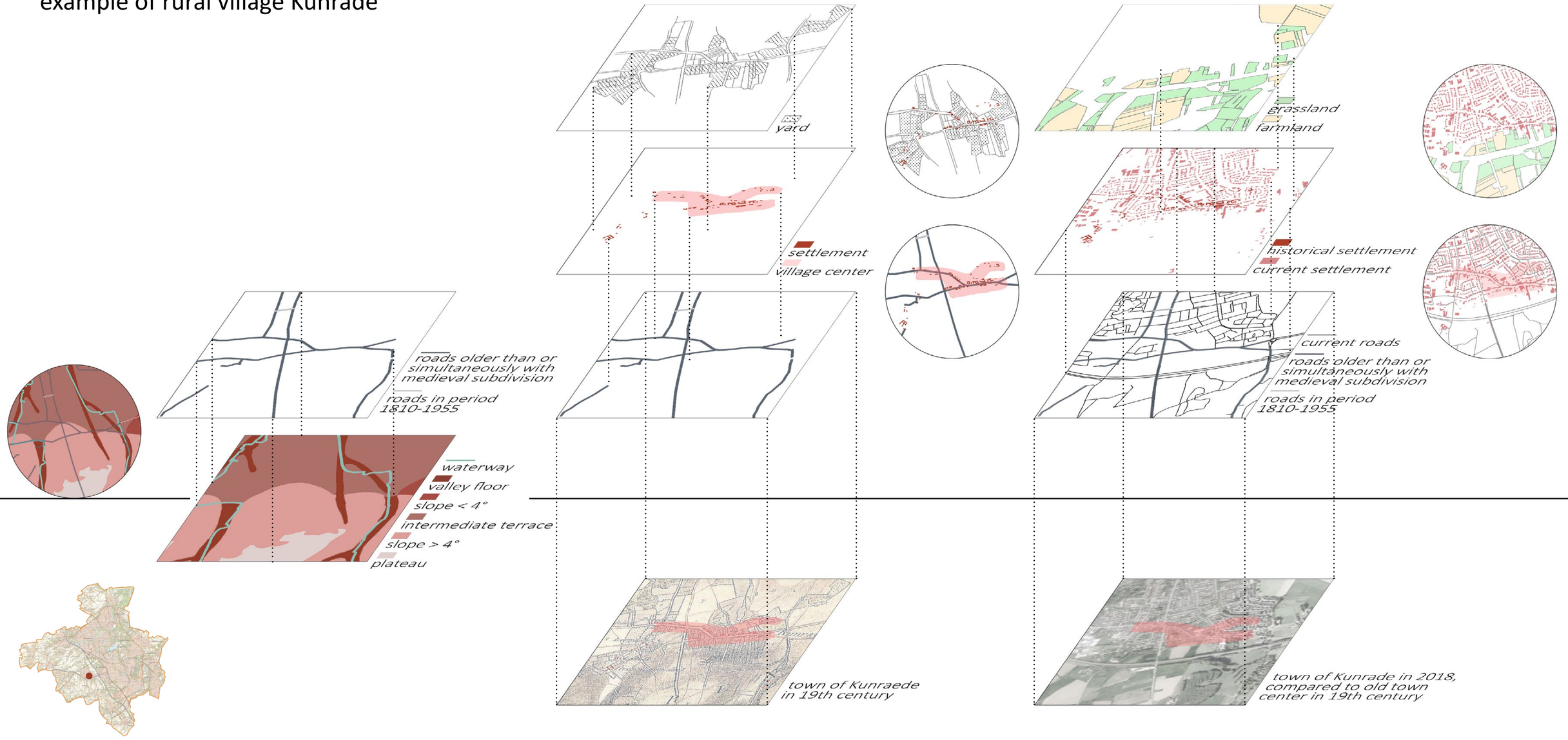




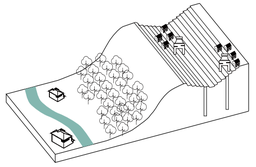
castles in Medieval time

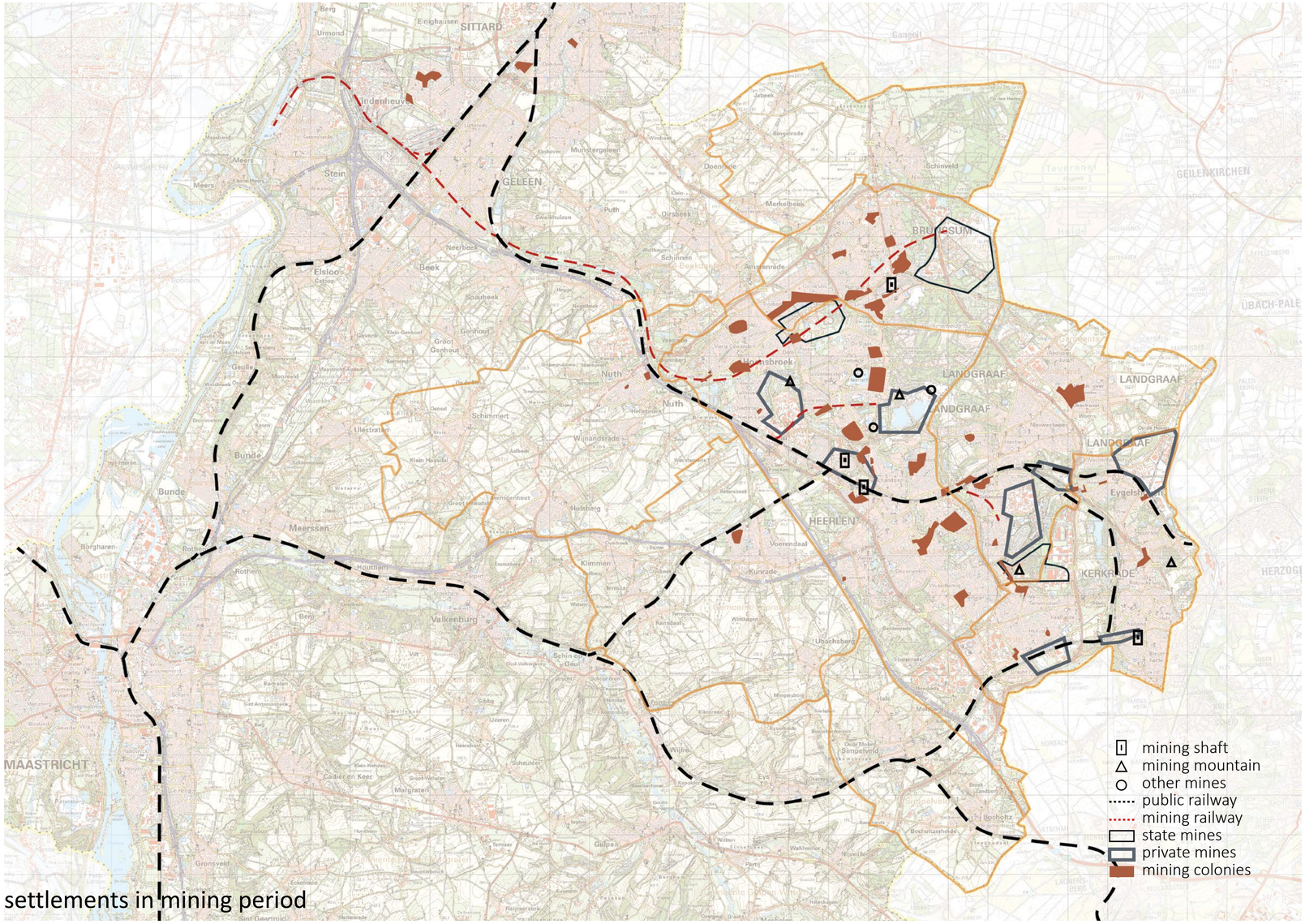
Landscape condition - settlement

example of rural village Kunrade



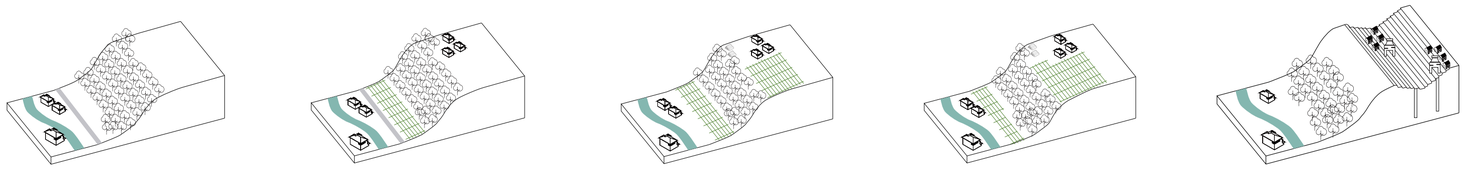
Landscape condition - settlement

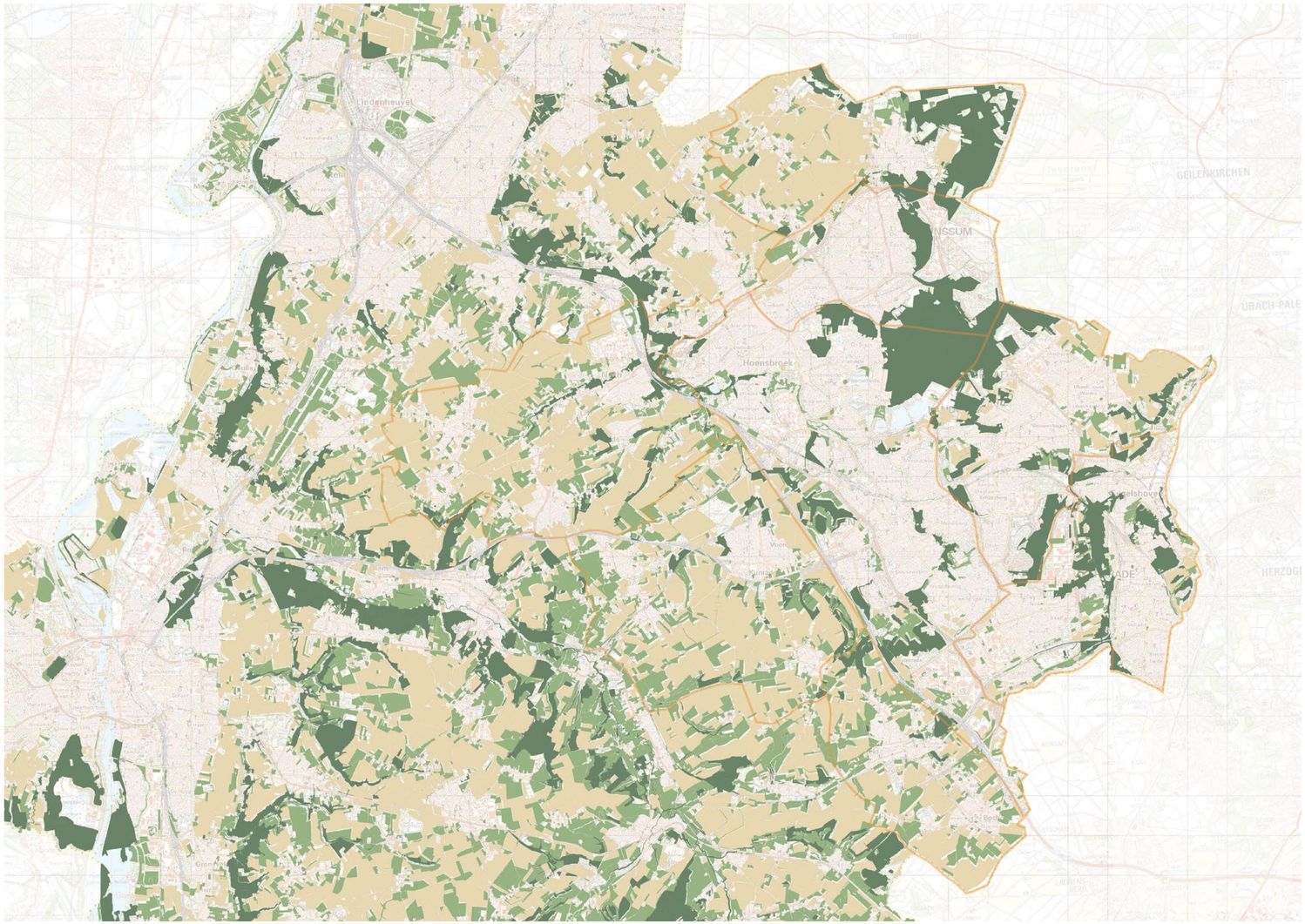




settlements in mining period

Landscape qualities





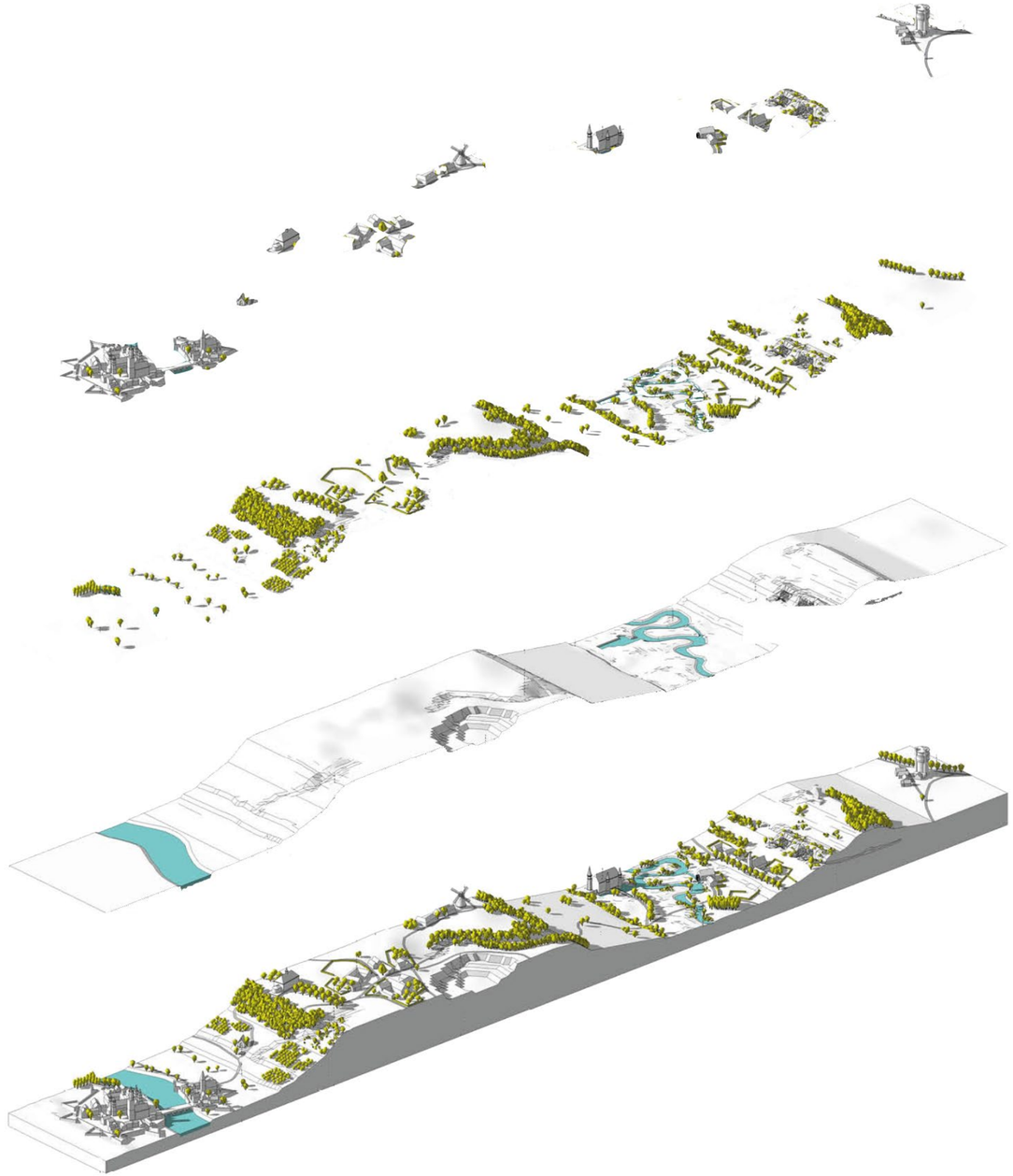
Landscape qualities

relics

green character

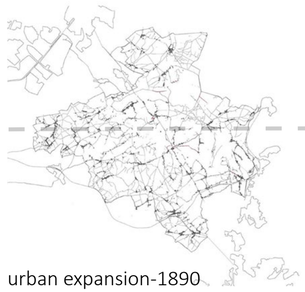
open and private

heritage

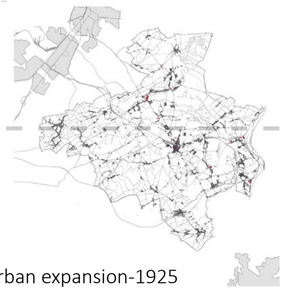


source: http://www.handvatnationaallandschap.nl/

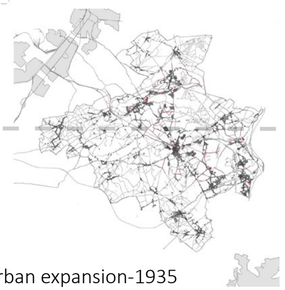
Problem statement - spatial fragmentation



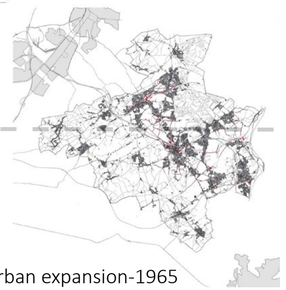
urban expansion-1890



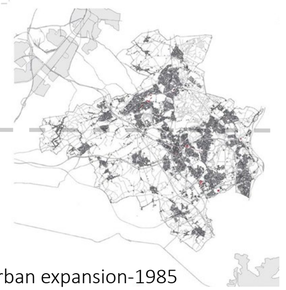
urban expansion-1925



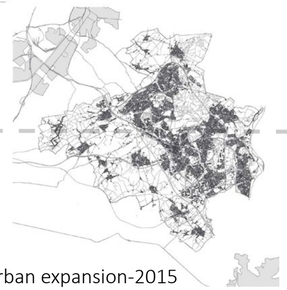
urban expansion-1935



urban expansion-1965



urban expansion-1985



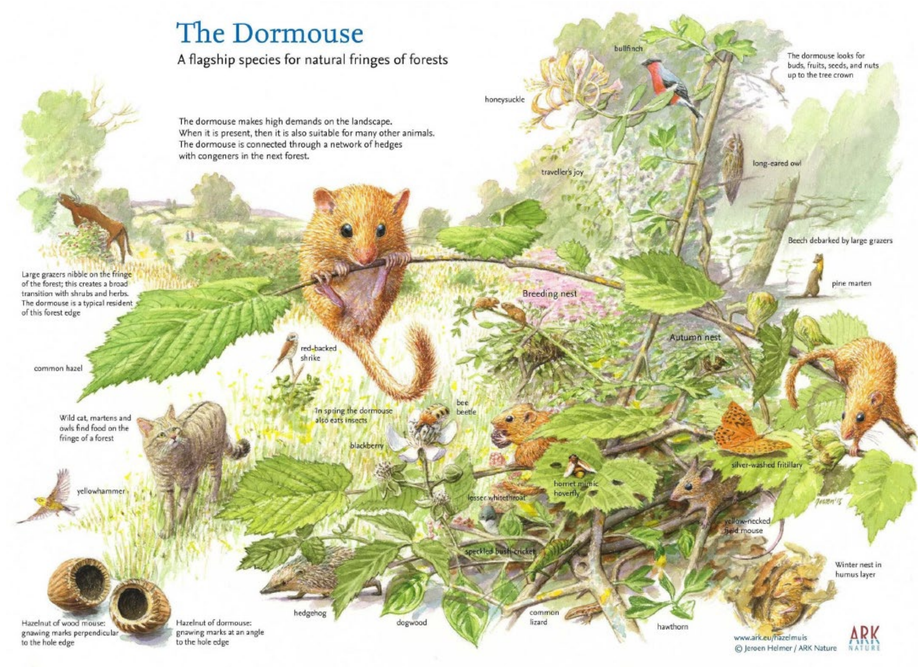
urban expansion-2015

green space - 1900

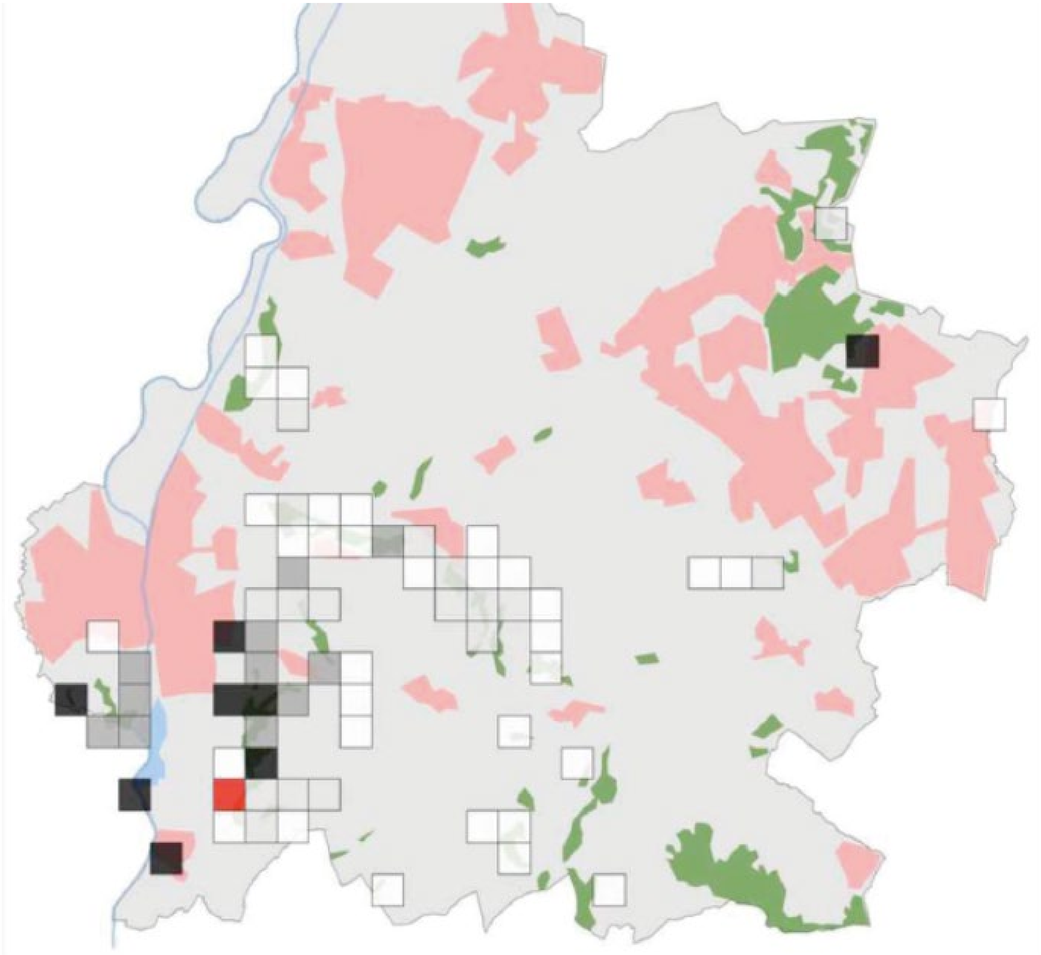
green space - 1960

green space - 2018

Problem statement - ecological problems



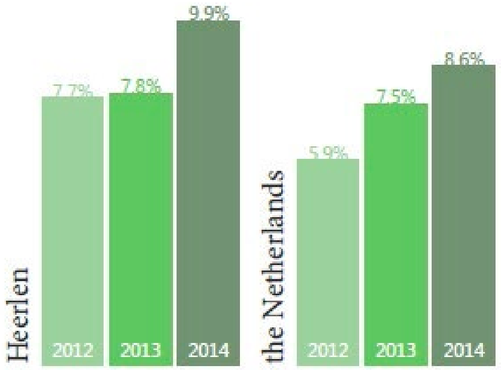
source: https://webwinkel.ark.eu/



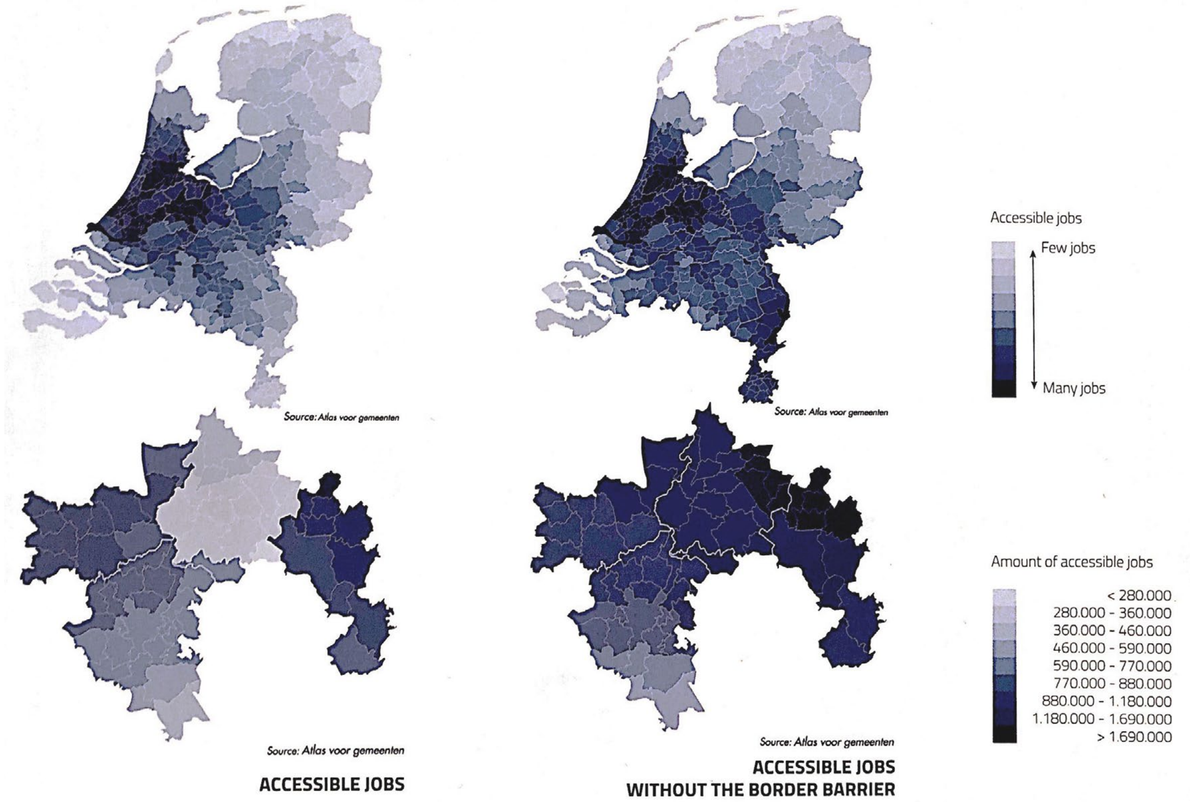
Acorn mouse sightings in Limburg in the period 1900-2014. In 2014, the acorn mouse only occurs in the Savelsbos with certainty (the red square).

Source: Bekker & La Haye (2015)

Problem statement - social problems



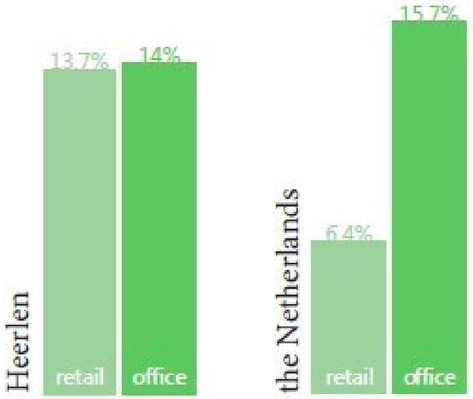
unemployment rate
source: CBS 2014



comparison of job accessibility in NL and in the inter-national region with or without border

source: manual IBA Parkstad Limburg

Problem statement - social problems



vacancy rate
source: CBS 2014

Problem statement - social problems

Problem statement - social problems

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🤔

Problem statement - social problems

Hoenshuis - golf club

Castle Terworm - hotel, restaurant

slag heap - staircase

historic site of a Roman villa, now an empty green space

fenced quarry

fenced ruin of farmhouse

old buildings

?

community vitality

old people

community

?

social vitality

tourism

old buildings

?

preservation

society

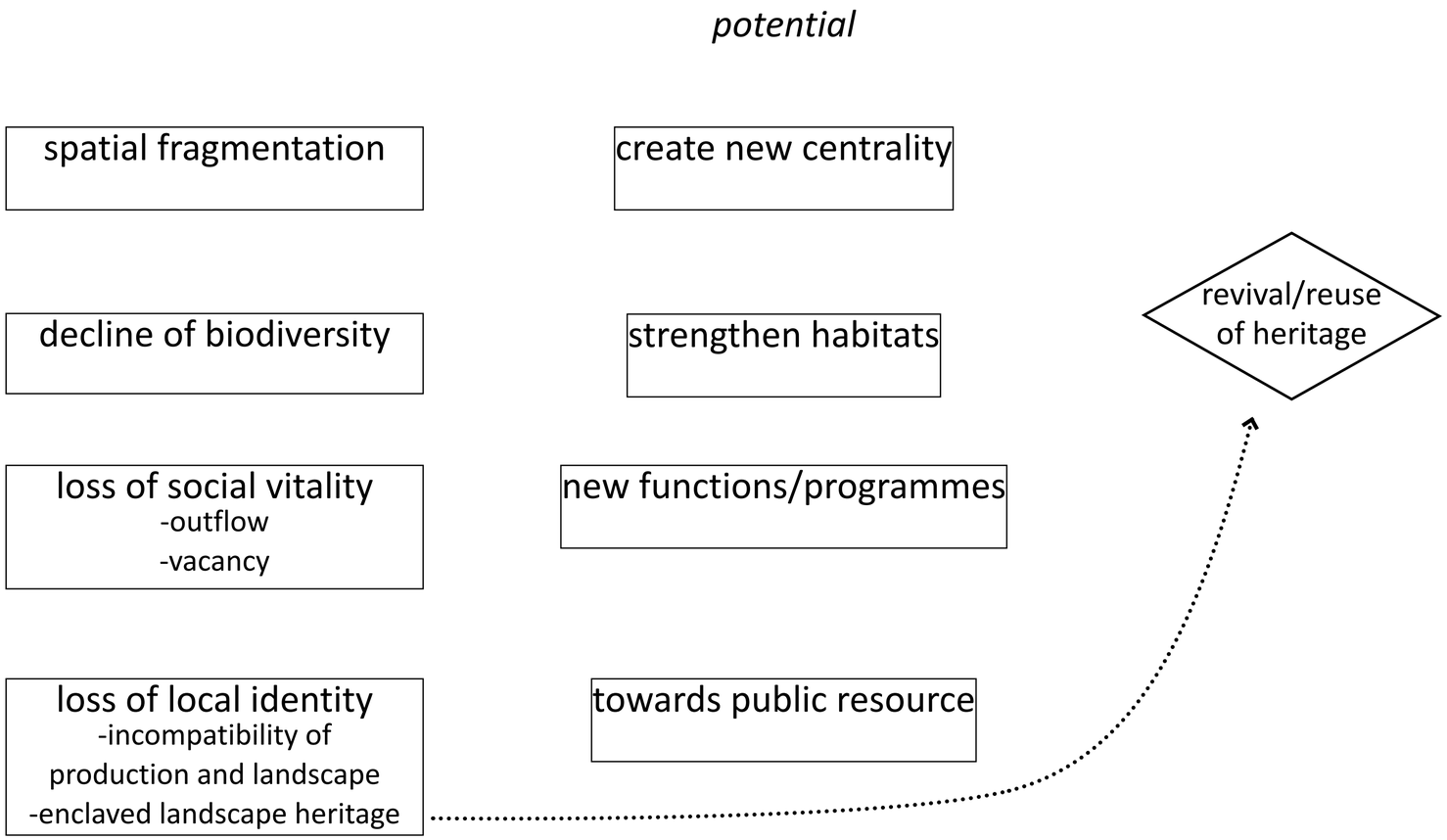
How can agricultural landscape heritage improve local people's living quality and get benefit from this improvement?

goal

potential

spatial fragmentation	create new centrality
decline of biodiversity	strengthen habitats
loss of social vitality -outflow -vacancy	new functions/programmes
loss of local identity -incompatibility of production and landscape -enclaved landscape heritage	towards public resource

goal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-incompatibility of
production and landscape
-enclaved landscape heritage
towards public resource
revival/reuse
of heritage

goal

potential

spatial fragmentation

create new centrality

decline of biodiversity

strengthen habitats

loss of social vitality
-outflow
-vacancy

new functions/programmes

loss of local identity
-incompatibility of production and landscape
-enclaved landscape heritage

towards public resource

revival/reuse of heritage → a better living environment

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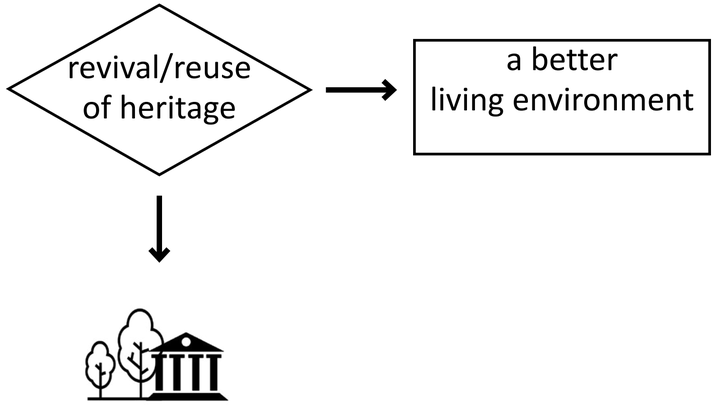

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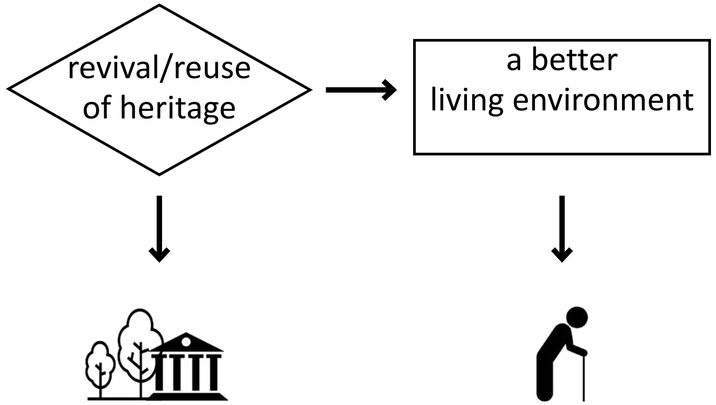

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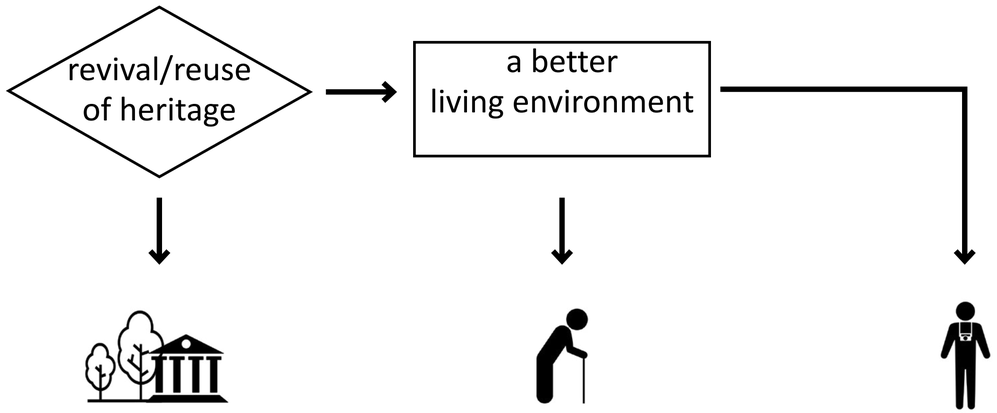

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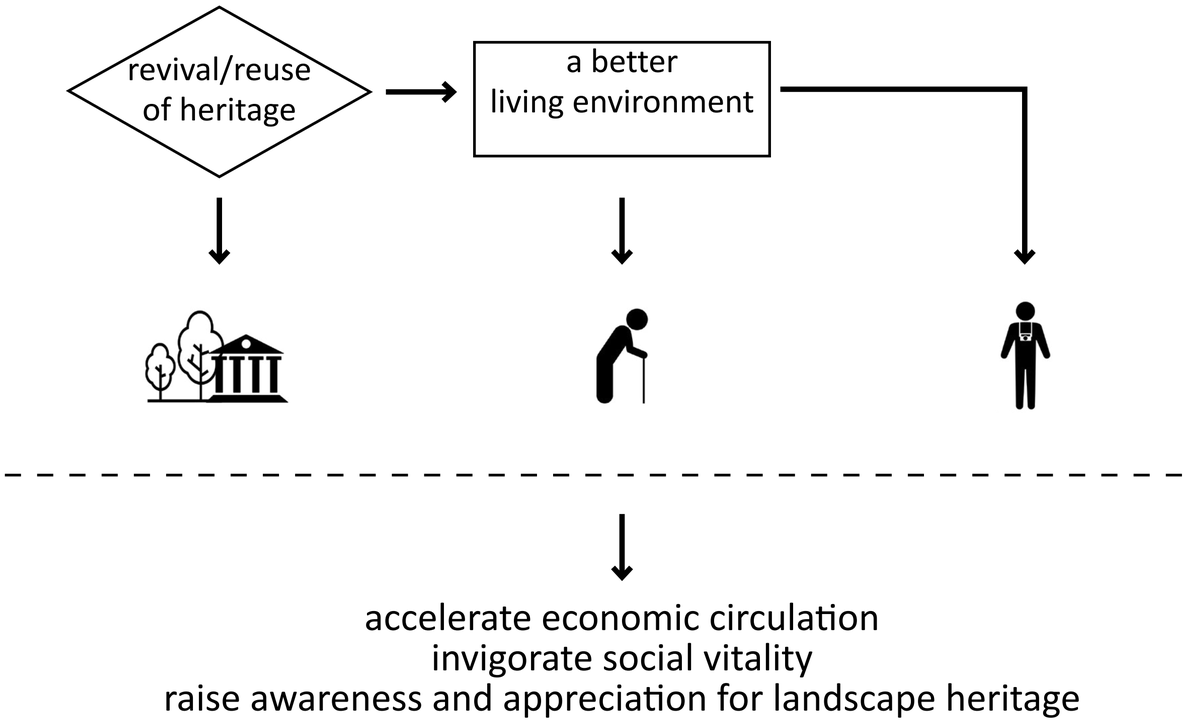
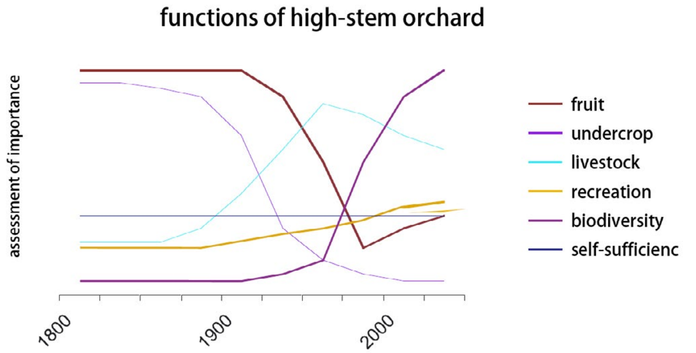


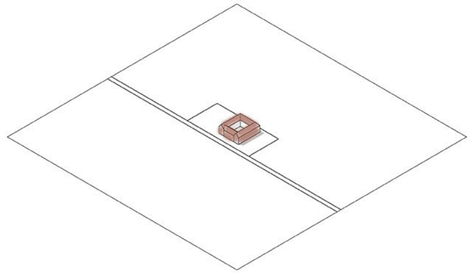
scope - agricultural heritage

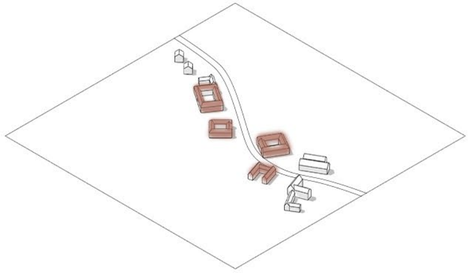


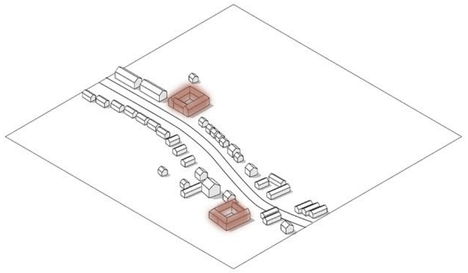
blooming high-stem orchards with sheep underneath

blooming high-stem orchards with sheep underneath

scope - agricultural heritage



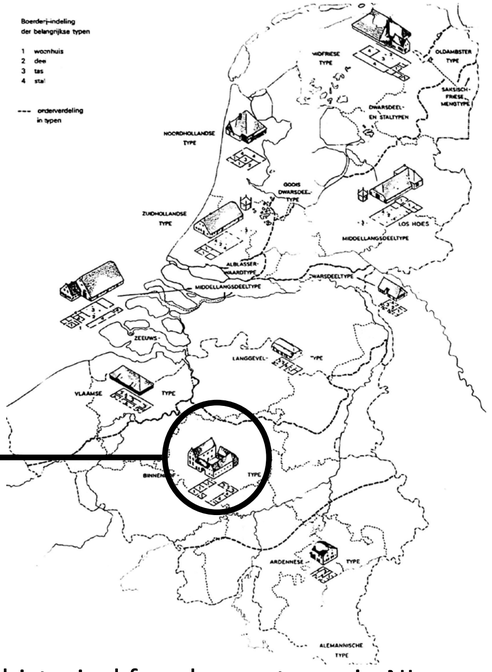




the surroundings of the Vogelzang farm

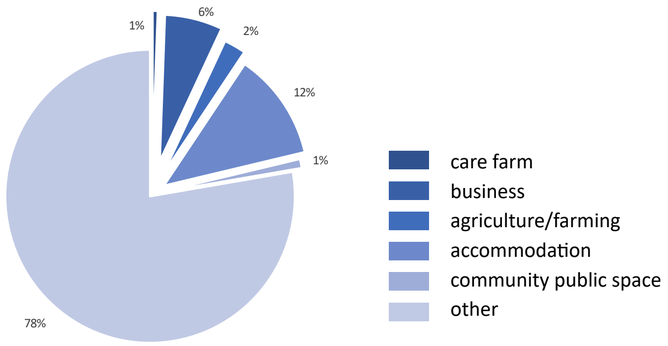
source: KLM-Aerocarto, No. 32599

source: www.cultureelerfgoed.nl

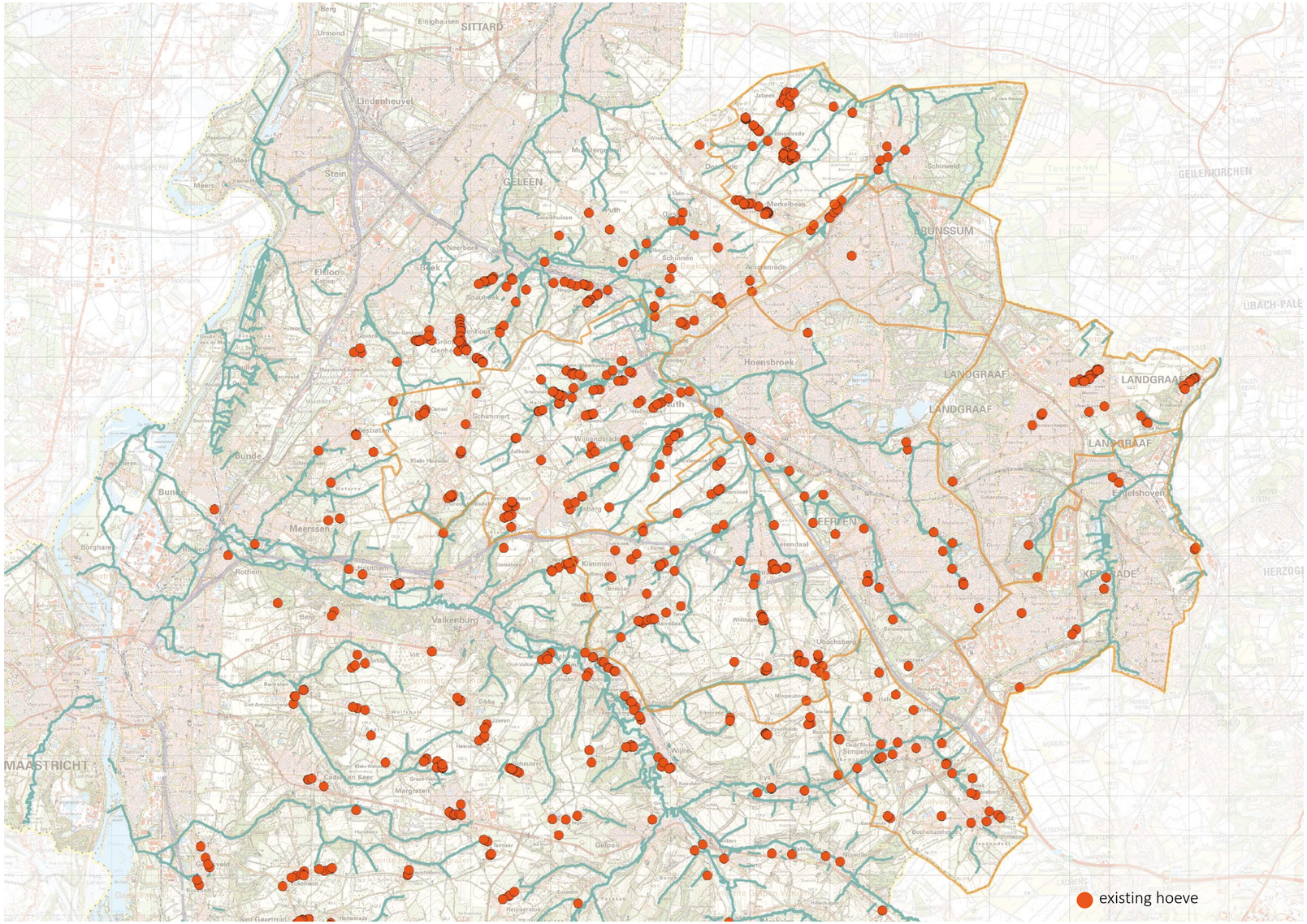


historical farmhouse types in NL

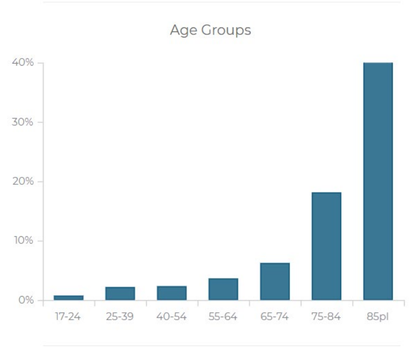
scope - agricultural heritage



current usage of hoeve in Parkstad & National Landscape

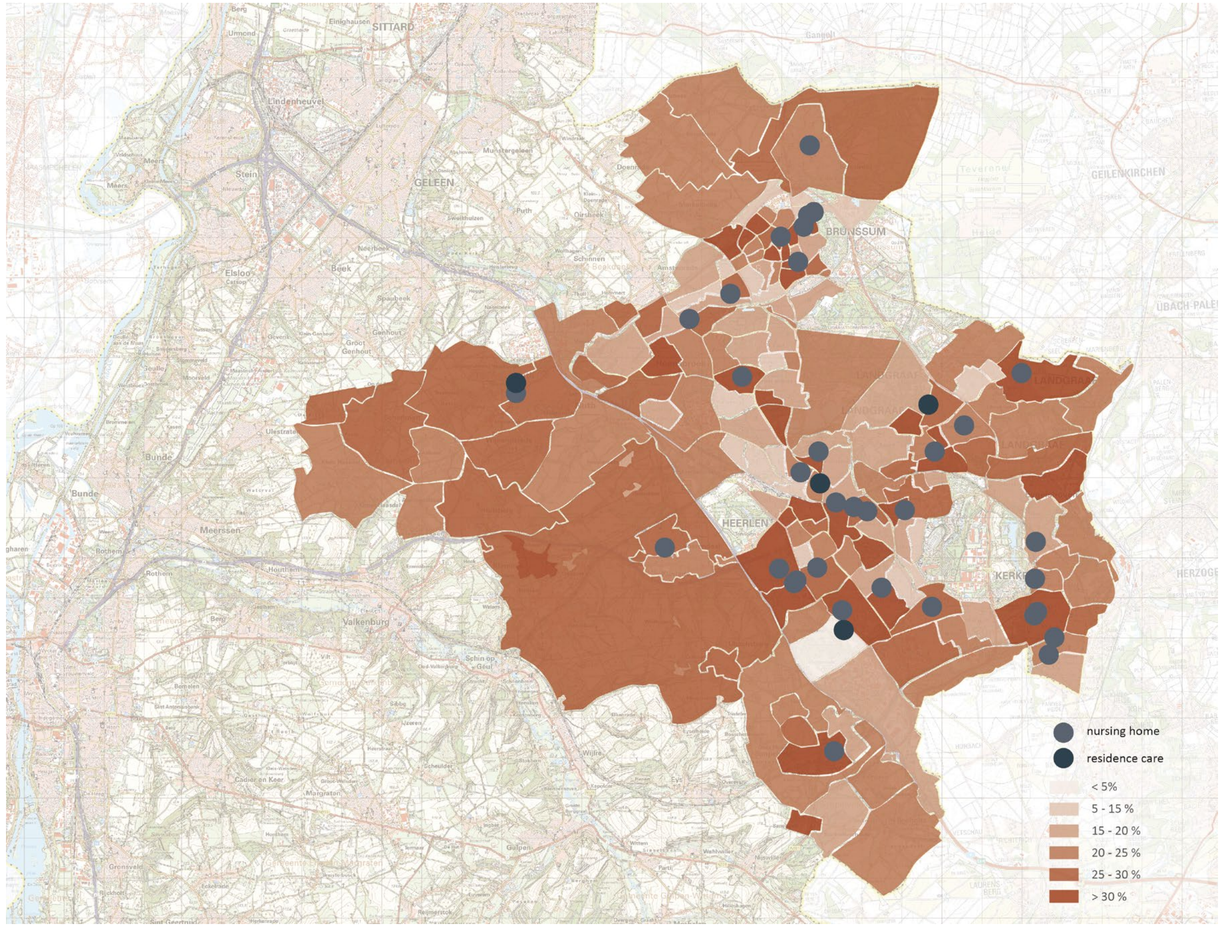


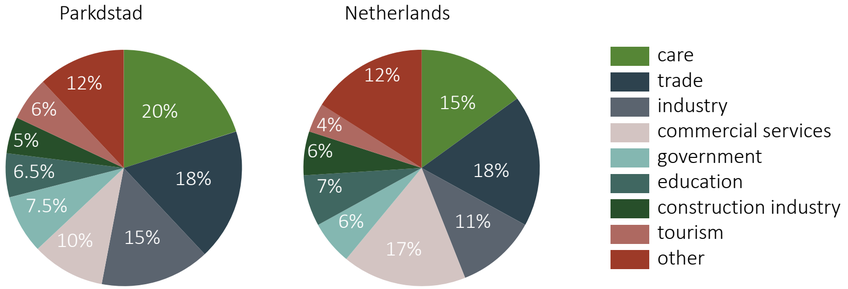
scope - aging and healthcare



proportion of people contacting with home care in different ages

proportion of people contacting with home care in South Limburg

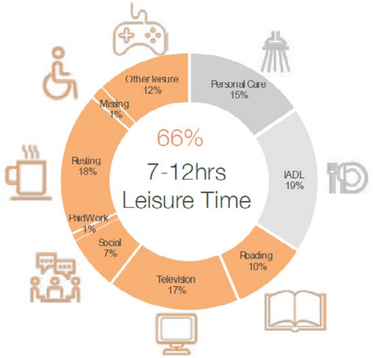




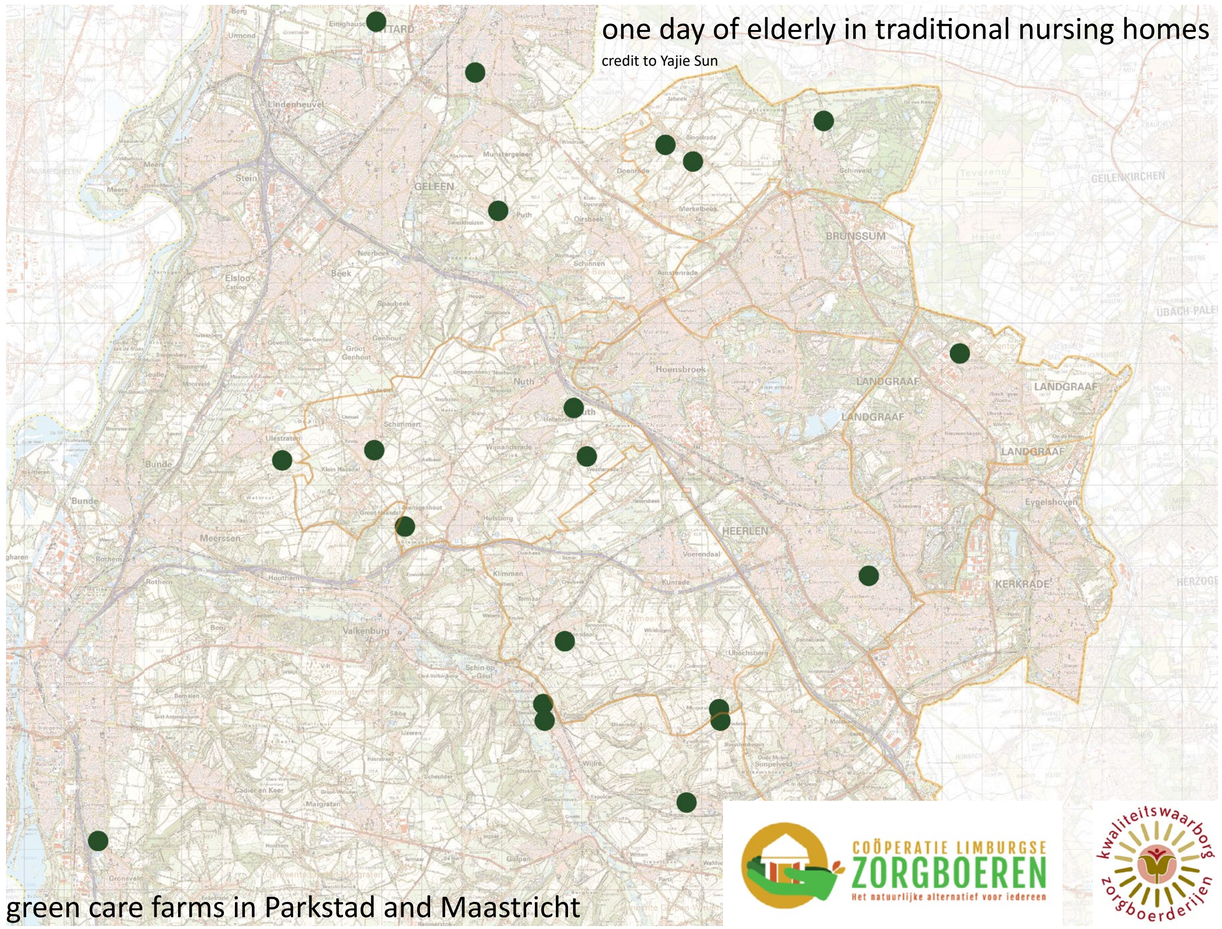
sectors of service provision

source: manual IBA Parkstad Limburg summer 2015

scope - aging and healthcare

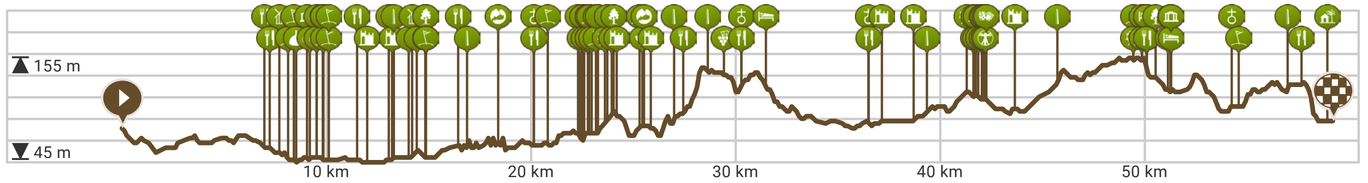


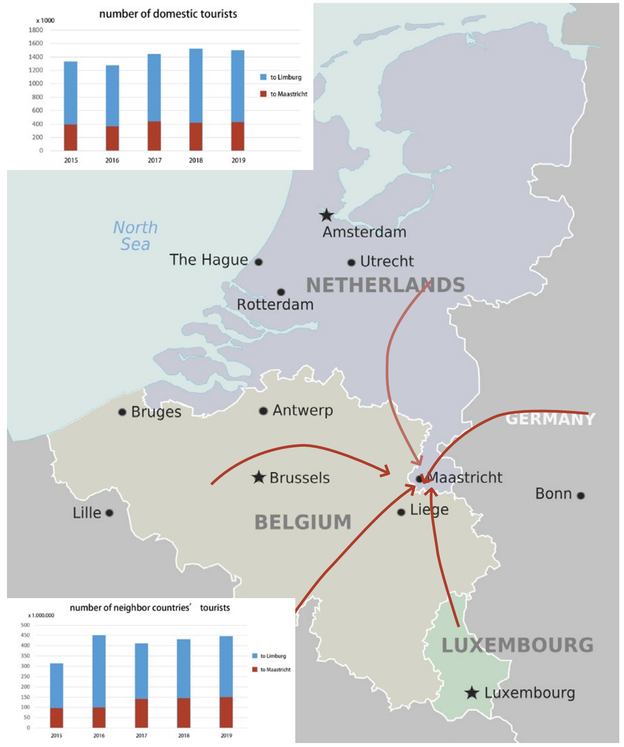
impression of green care farm

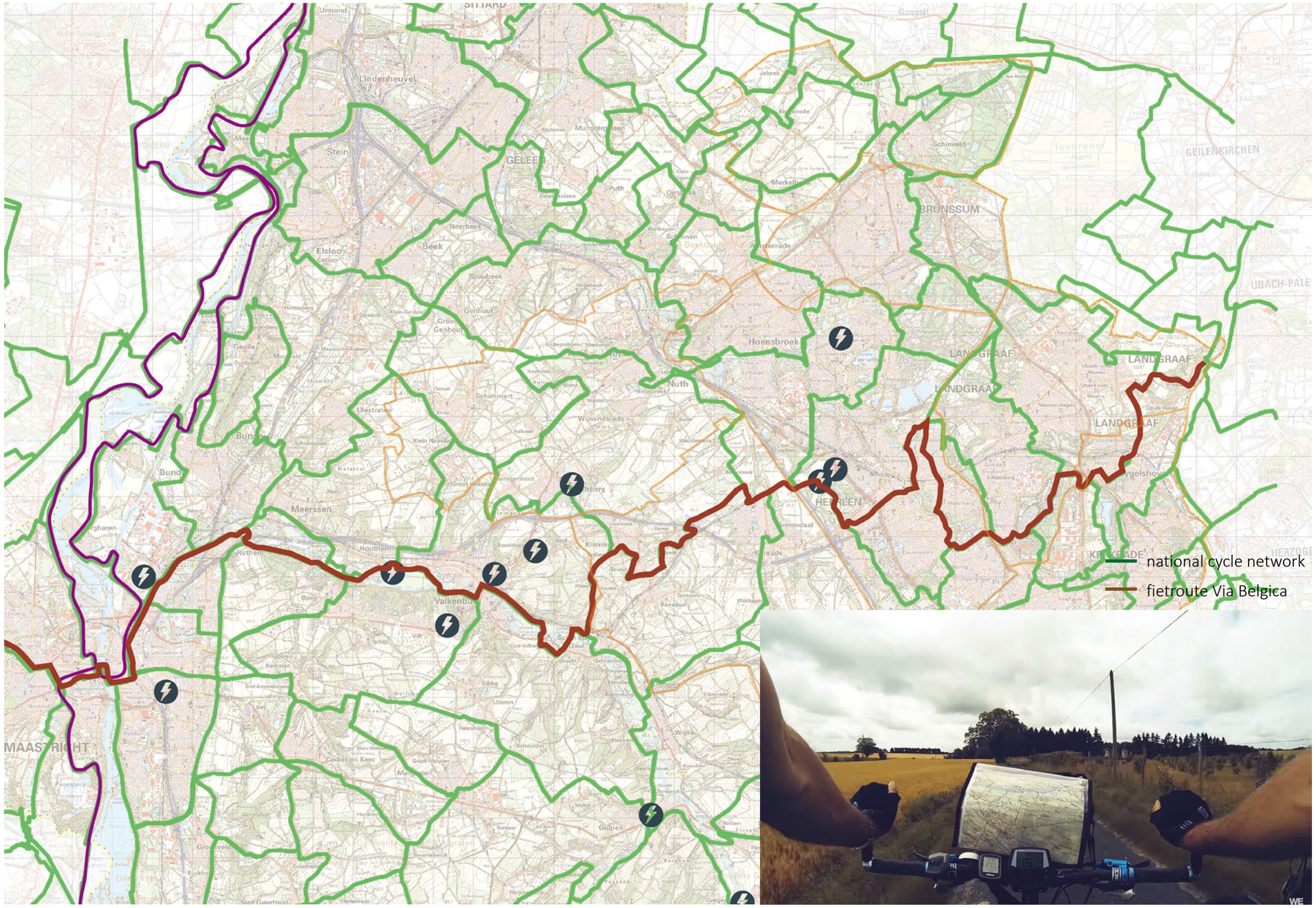


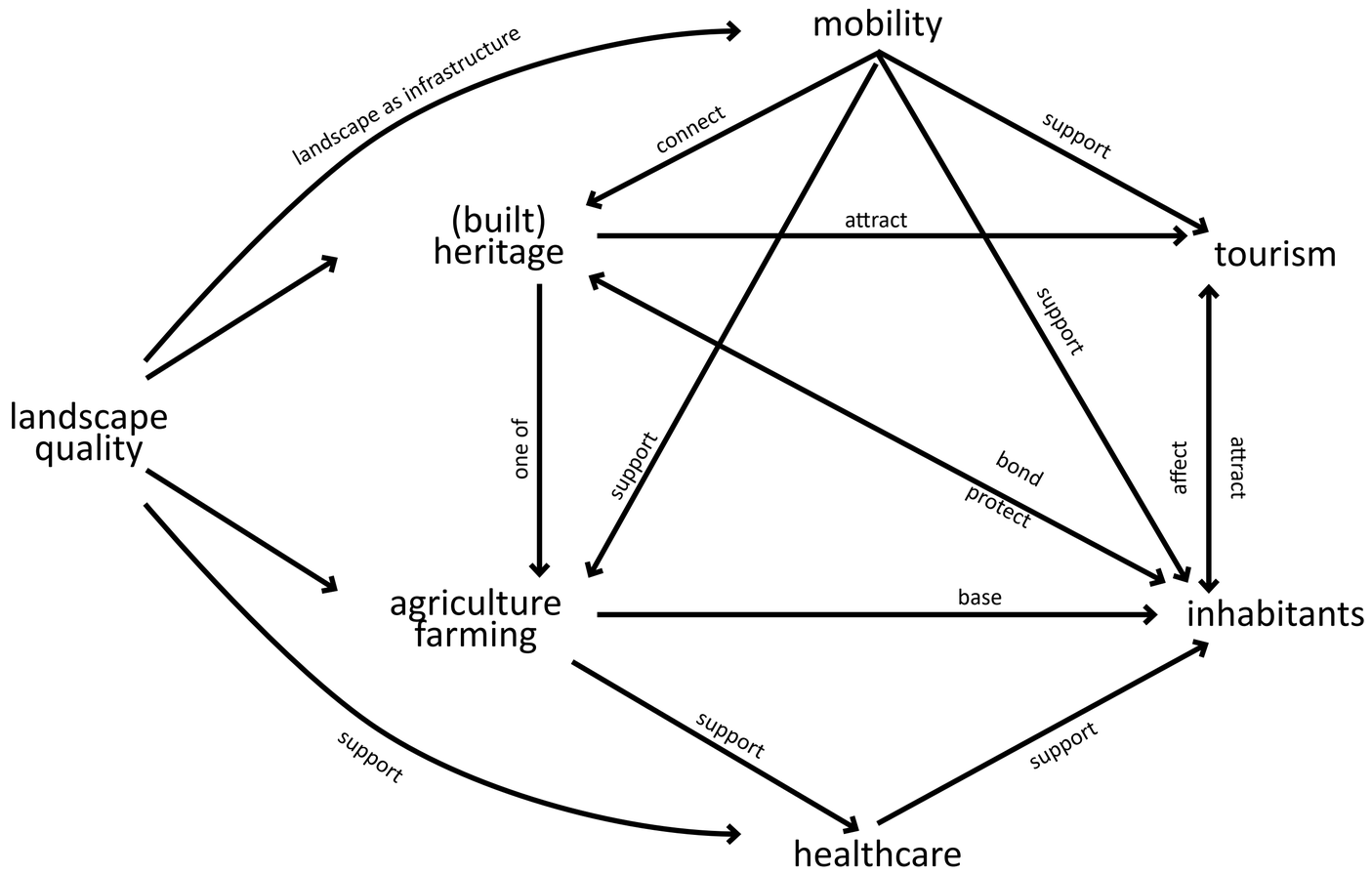
green care farms in Parkstad and Maastricht

scope - tourism and mobility





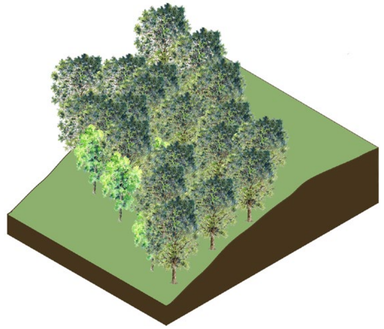



mobility
landscape as infrastructure
connect
support
(built)
heritage
attract
tourism
support
landscape
quality
one of
support
bond
protect
affect
attract
agriculture
farming
base
inhabitants
support
support
support
healthcare

principles

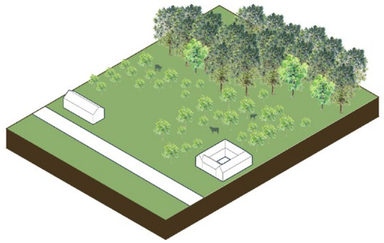
long-term management	development phases instead of blueprint
interactive landscape	stimulating and engaging activities for elderly; public open space for the community and the tourists
mobility	easy access to all kinds of facilities and being free to move around; effective combination of fast-speed and low-speed transportation
edge clearance & transition	strengthen the green edge of settlement and topography; clarify the transition between urban and rural area
interpretation	better definition of landscape and people’s understanding of it to create a stronger shared sense of place
collaboration	joint force among all related parties

Strategy



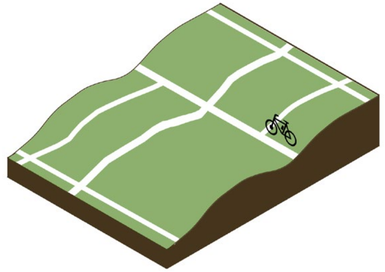
wooded steep slope

-protect against erosion and flood
-create habitat & ecological connection
-strengthen the contrast between open plateau and valley



high stem orchard as transfer

-create habitat & ecological connection
-revive traditional agricultural landscape

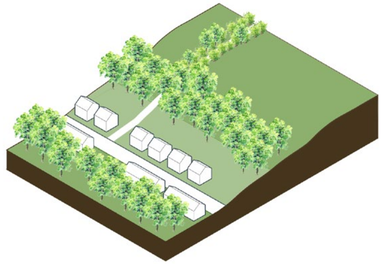


cycling routes cutting contour

-enrich the experience of hilly cycling

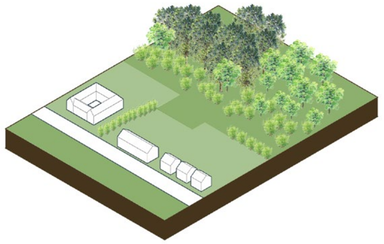
waterfront path

-invite people to take a walk near the brook, enjoy scenery, and even raise awareness about climate change and enronmental protection



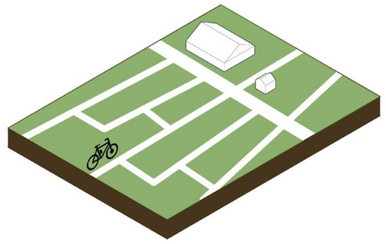
greenery on the edge

-emphasize the framing of the village
-emphasize the typical hollow roads
-serve as green chain connecting settlement and rural nature



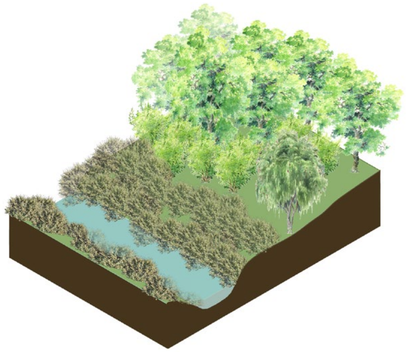
ragged plot as transfer

-create habitat & ecological connection between settlement and forest



green cycling routes

-easy access from settlement to rural nature
-enrich the experience among different greenery



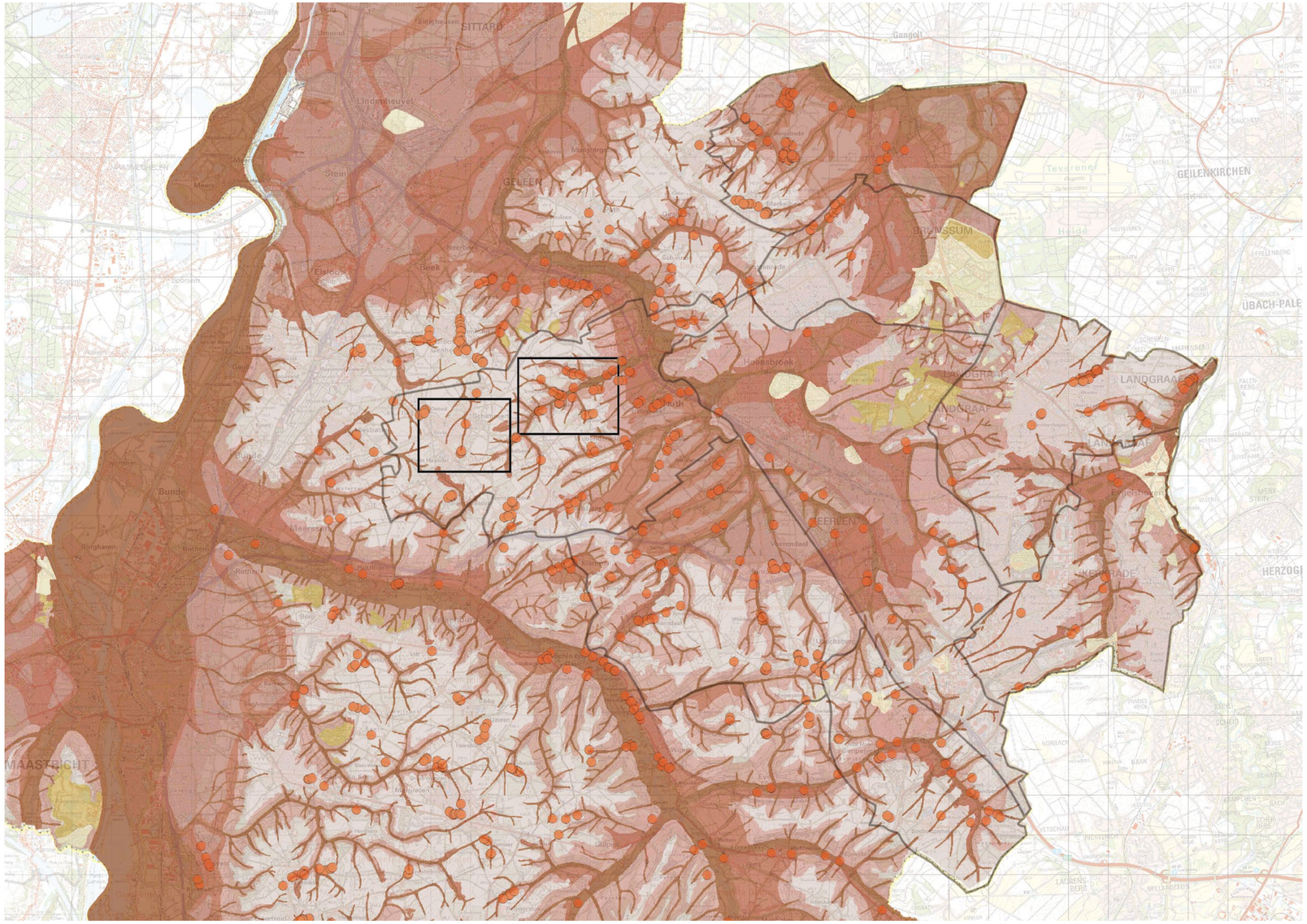
brook in woods

-maintain the wild natural habitat for biodiversity
-enhance the enclosed and dense spatial quality

landscape typology

plateau

valley



Meso scale - plateau

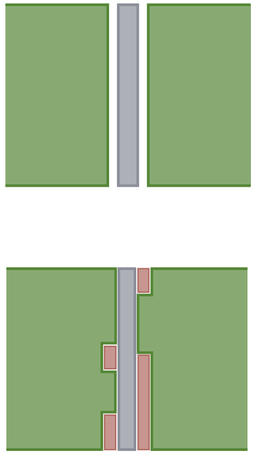
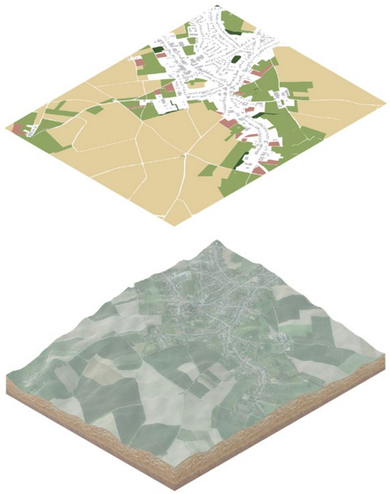
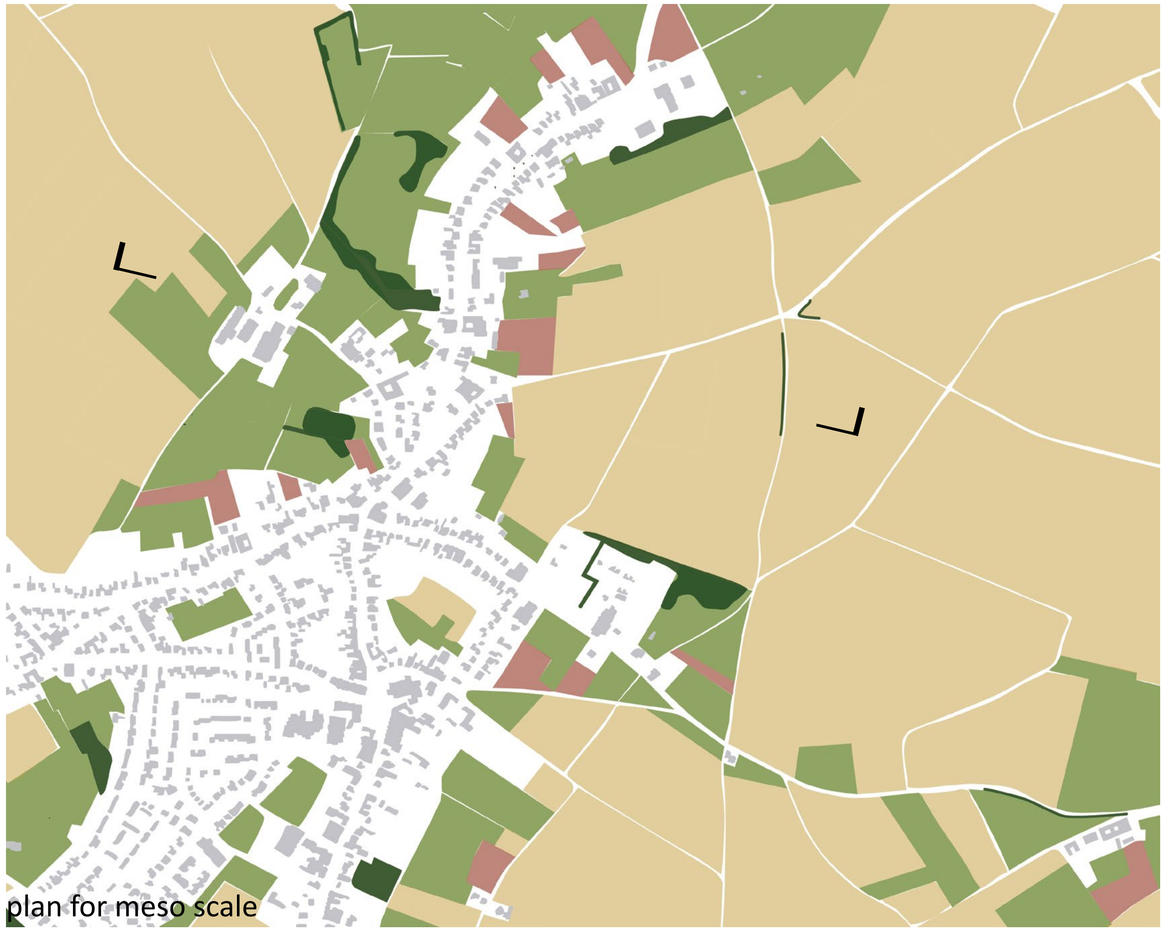


diagram for prototype



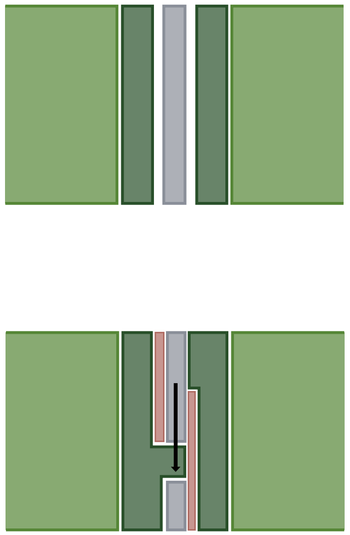


plan for meso scale

settlement
high-stem orchard farm
arable land
grassland
wooded forest

Meso scale - plateau

Meso scale - valley



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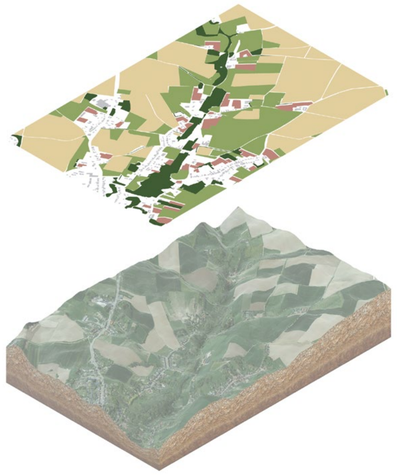
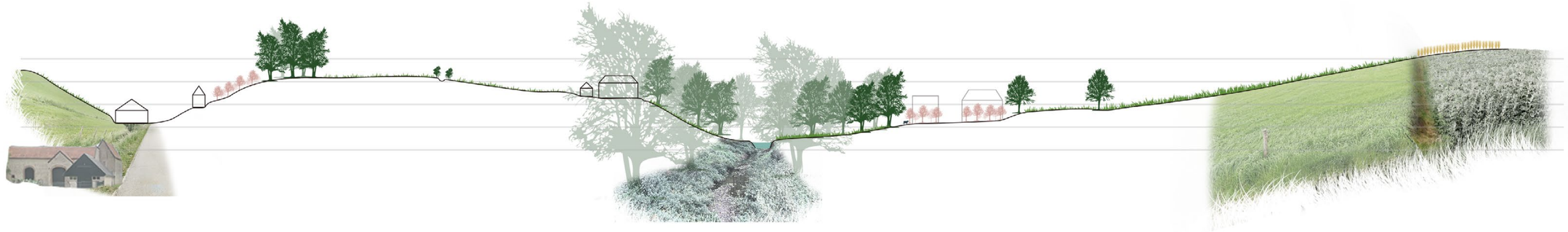
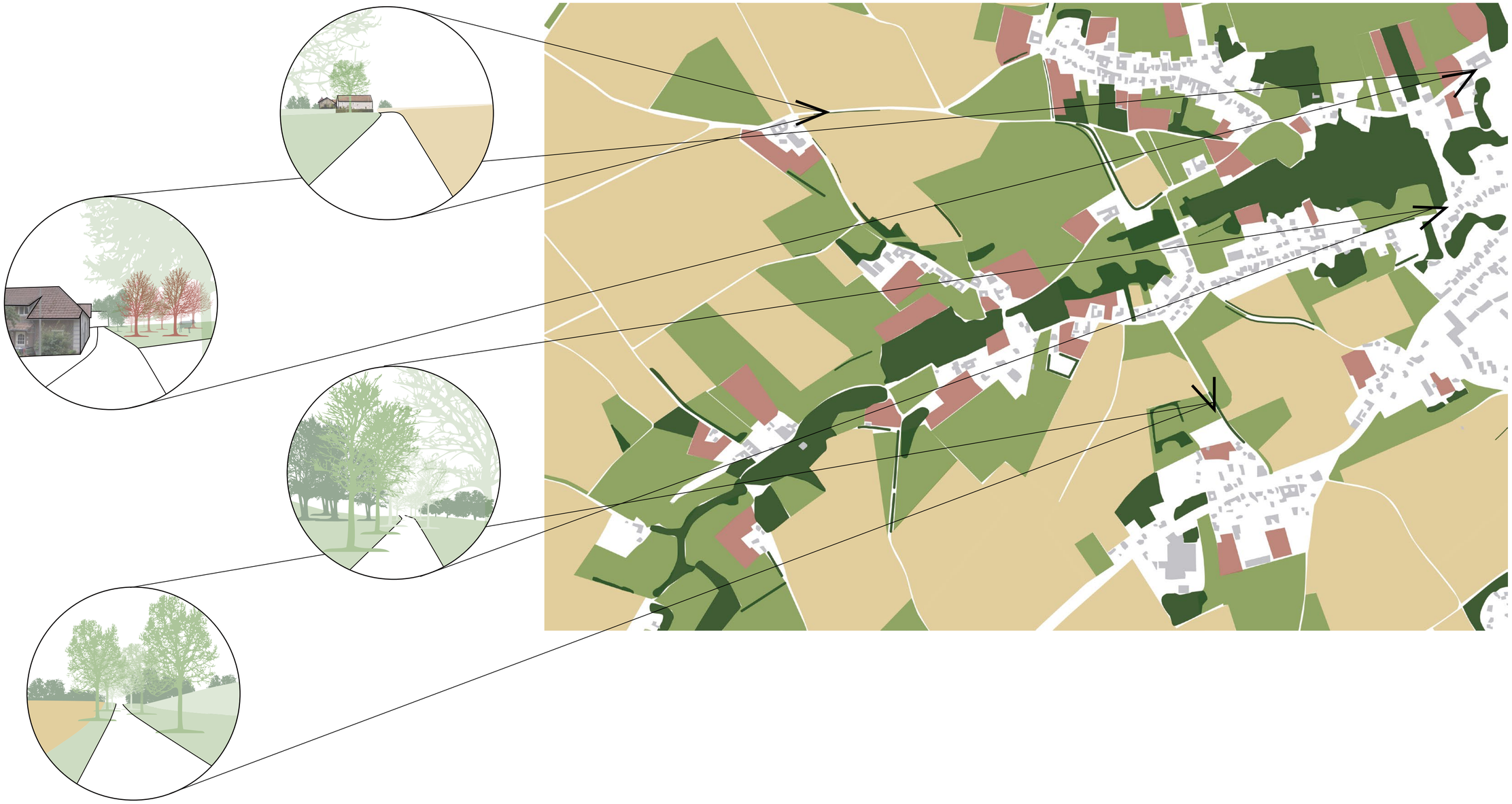


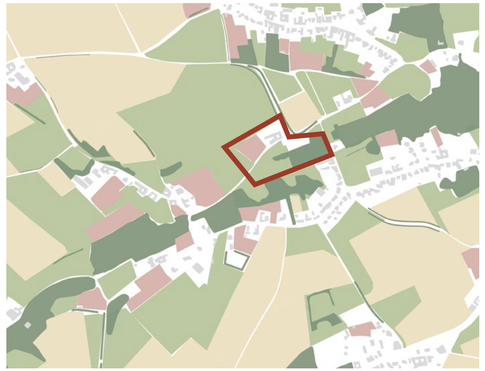
settlement
high-stem orchard farm
arable land
grassland
wooded forest

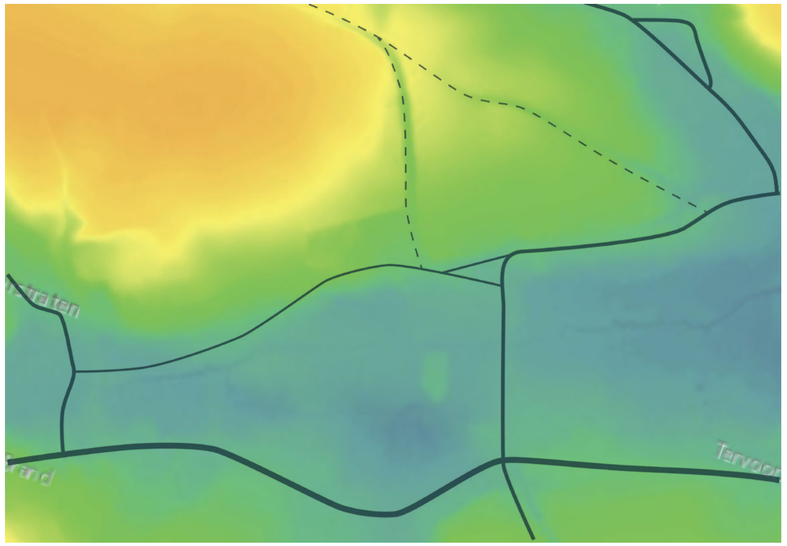


Meso scale - valley



Micro scale - care farm



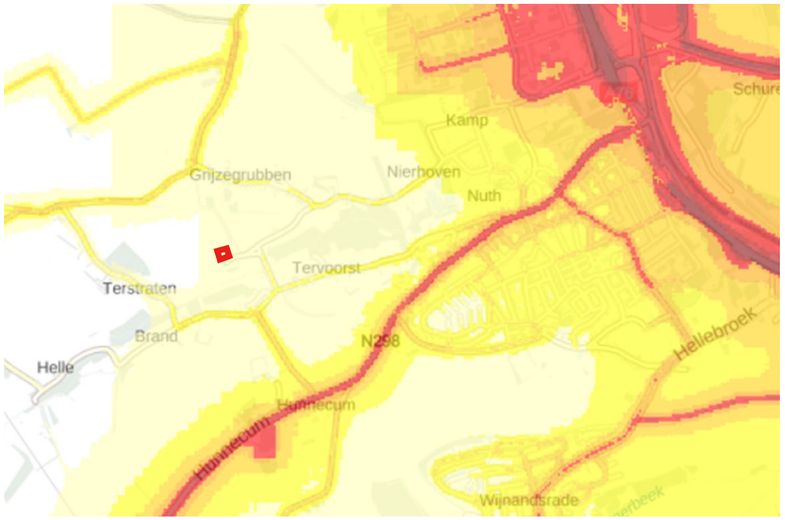


elevation
high

low

street connection map

cycling route
single-way road
secondary street
main street



noise map

45- 50 dB (good)
50- 55 dB(acceptable)
55- 60 dB(moderate)
60- 65 dB(bad)
65- 70 dB(very bad)
70- 75 dB
≥75 DB

transportation map

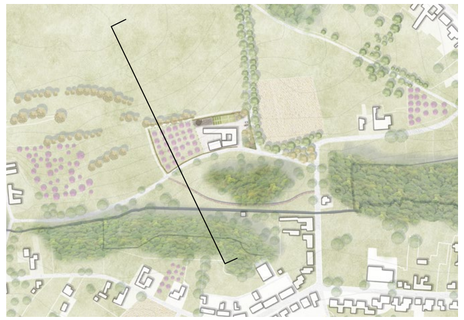
bus station
bus route
1000m range circle

Micro scale - care farm

1 hoeve (closed farmhouse)
2 farming patch
3 high stem orchard
4 biomeiler
5 community center
6 market plaza
7 sports center
8 graften
9 hollow road
10 flooding plein

grassland
farmland
hedge
wooden path
brook

0 20 50 100 200



Alnus glutinosa
black alder

Malus pumila
apple

Prunus padus
bird cherry

Crataegus monogyna
common hawthorn

Tilia cordata
linden

Salix aurita
eared willow

Quercus petraea
oak

yellow wegtail

bee

vole

Eurasian water shrew

Eurasian eagle owl

grey heron

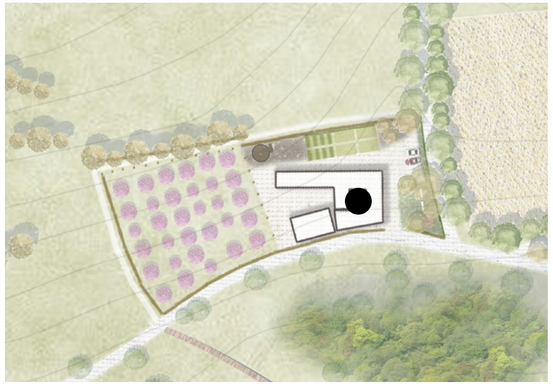
fire salamander

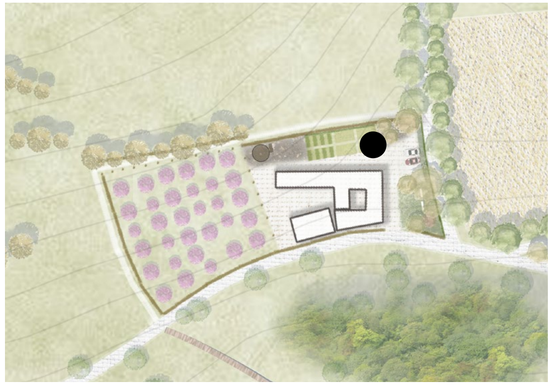
brook Lamprey

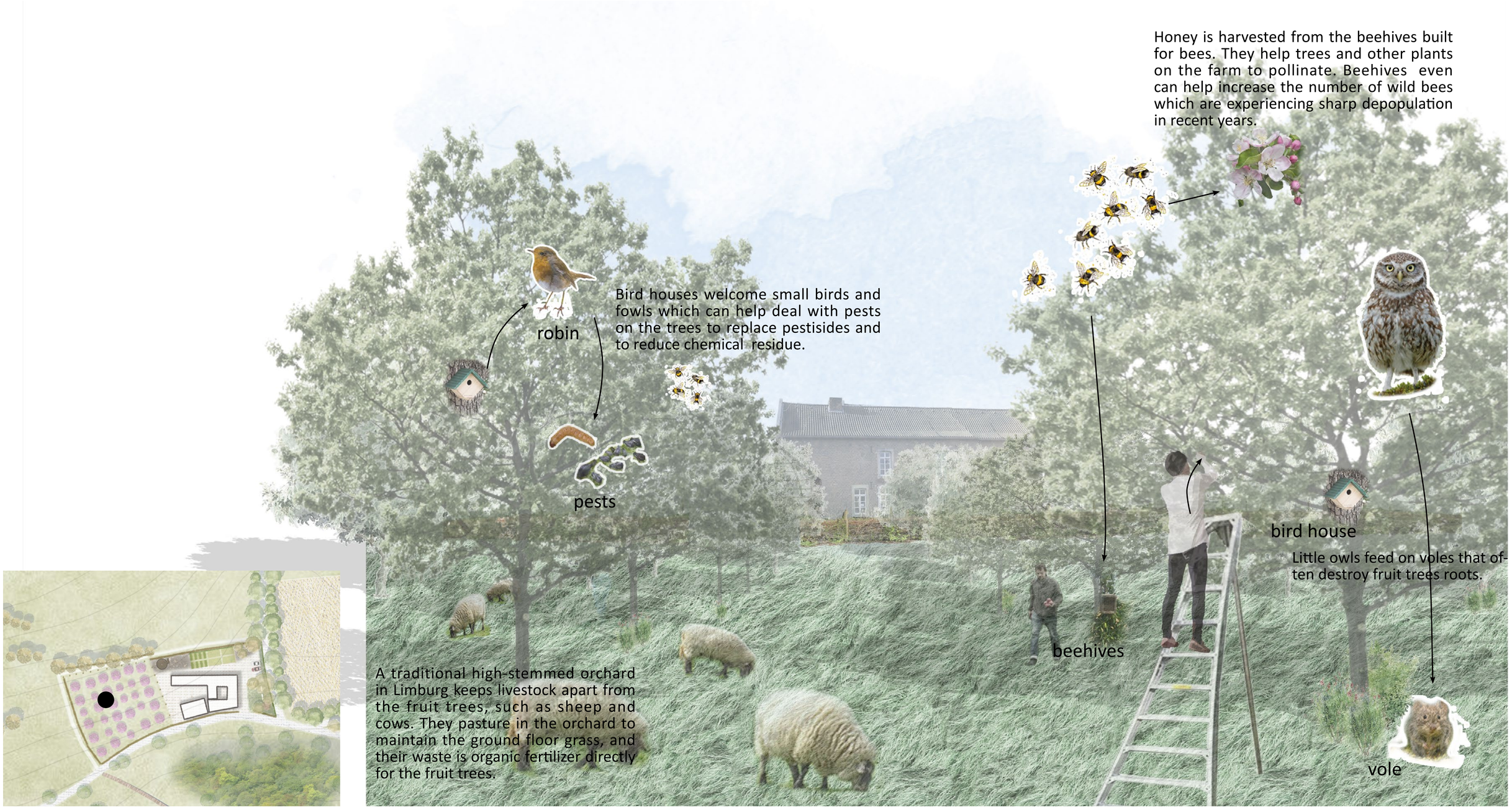
common minnow

white-throated dipper

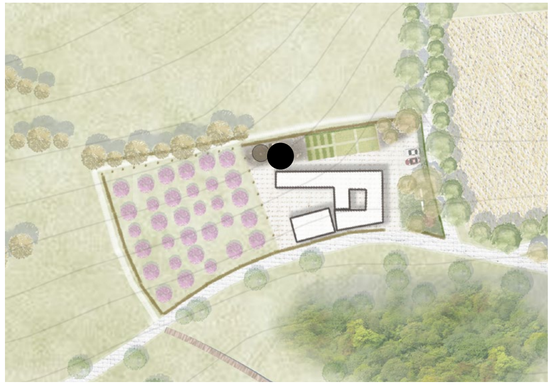
stimulating activities
open outdoor space with interactive elements and activities like stables, gardens, animals, to stimulate elderlys being physically and sensory active






Honey is harvested from the beehives built for bees. They help trees and other plants on the farm to pollinate. Beehives even can help increase the number of wild bees which are experiencing sharp depopulation in recent years.
robin
Bird houses welcome small birds and fowls which can help deal with pests on the trees to replace pestisides and to reduce chemical residue.
pests
bird house
Little owls feed on voles that often destroy fruit trees roots.
beehives
vole
A traditional high-stemmed orchard in Limburg keeps livestock apart from the fruit trees, such as sheep and cows. They pasture in the orchard to maintain the ground floor grass, and their waste is organic fertilizer directly for the fruit trees.

self-sustainability
A biomeiler can be self-installed on the farm. Using sheep manure, wood chips and some water, it can provide heat and energy for the hoeve and harvest compost, achieving a closed energy flow on the farm.



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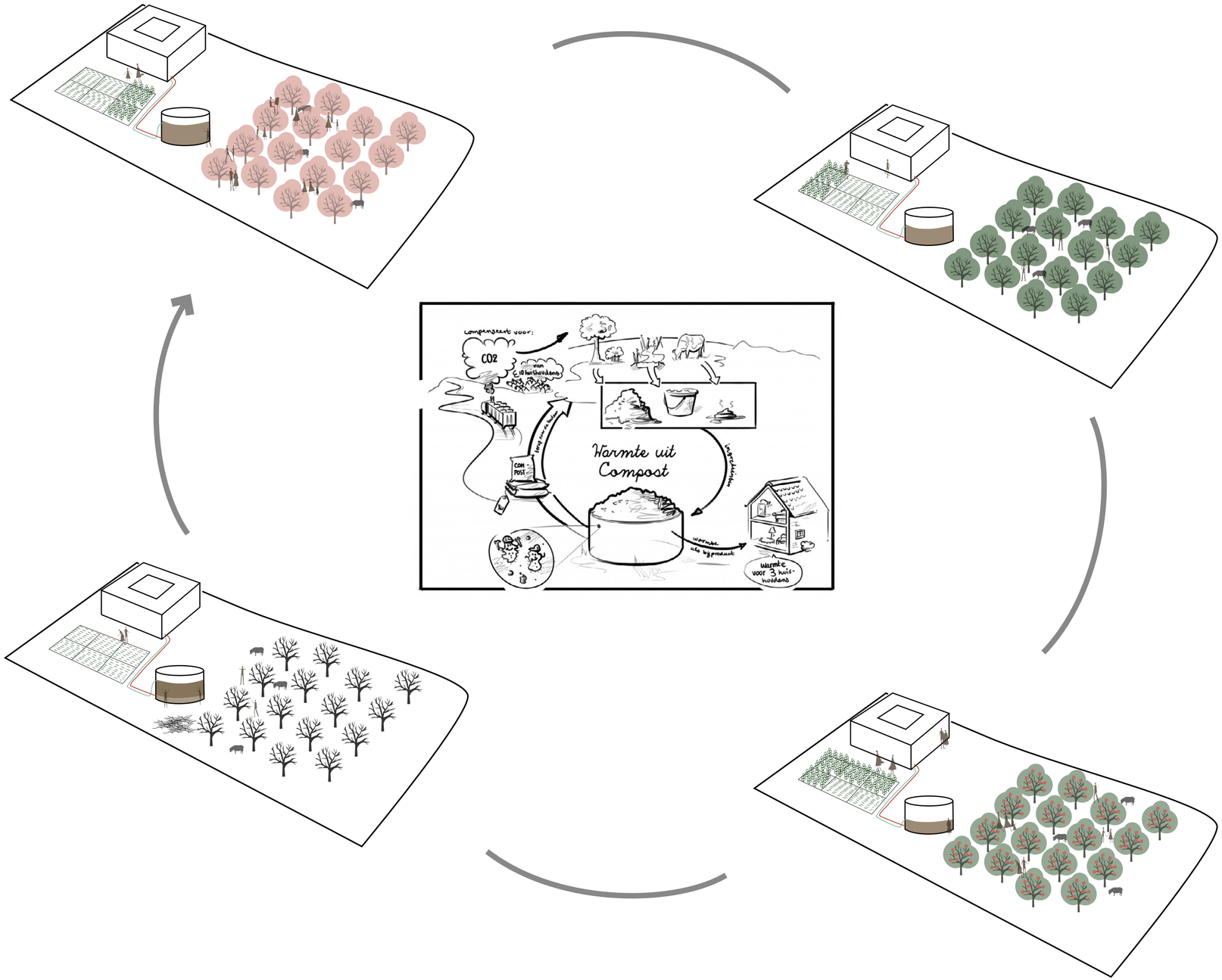
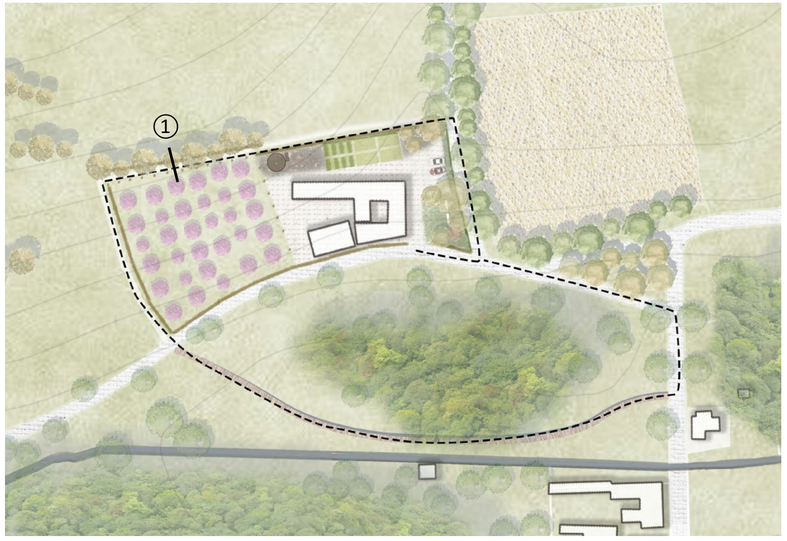
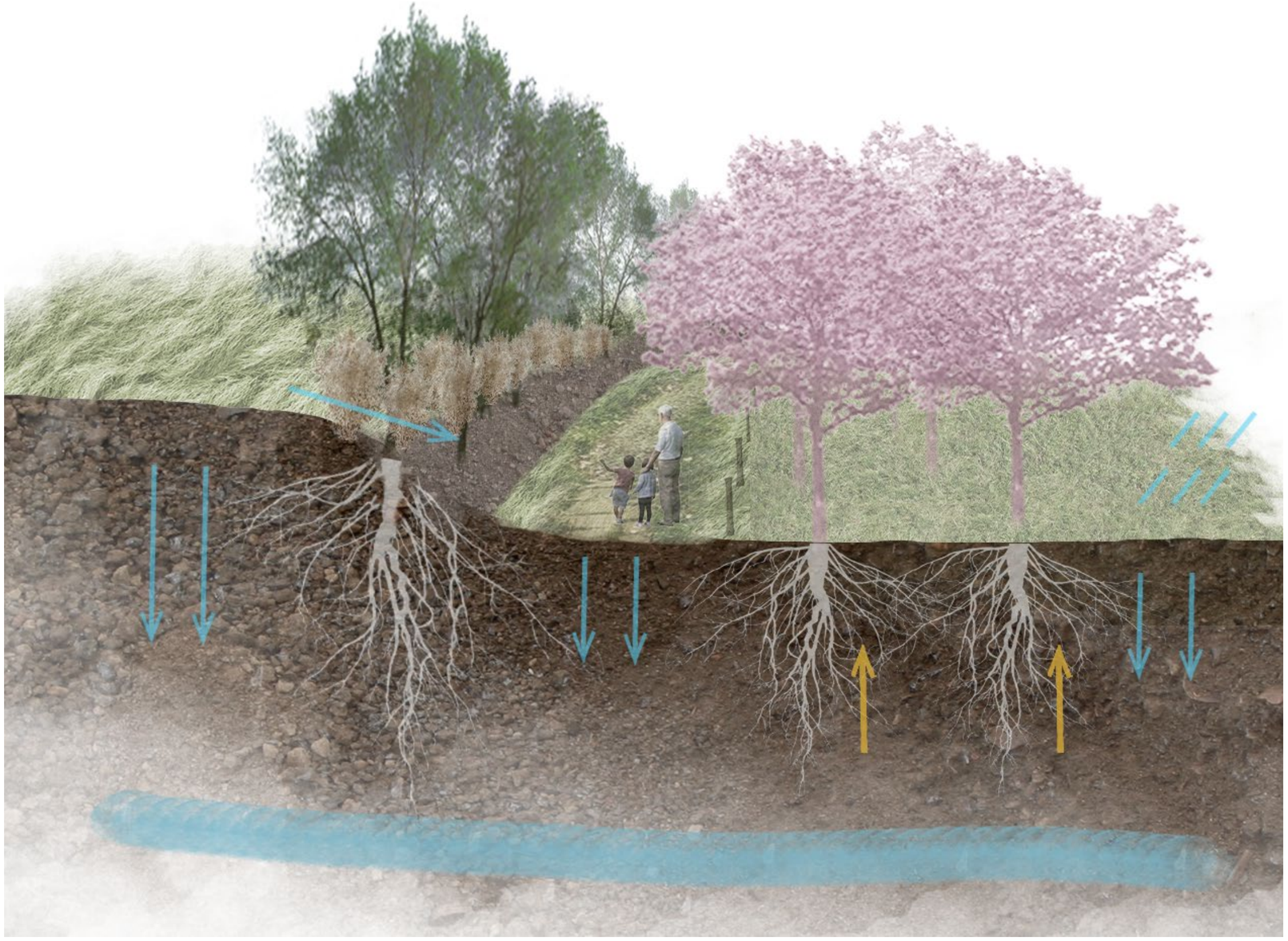


convenient mobility
by creating different biotopes, historical dirt roads can provide diversified environmental experiences as well as guarantee convenient mobility





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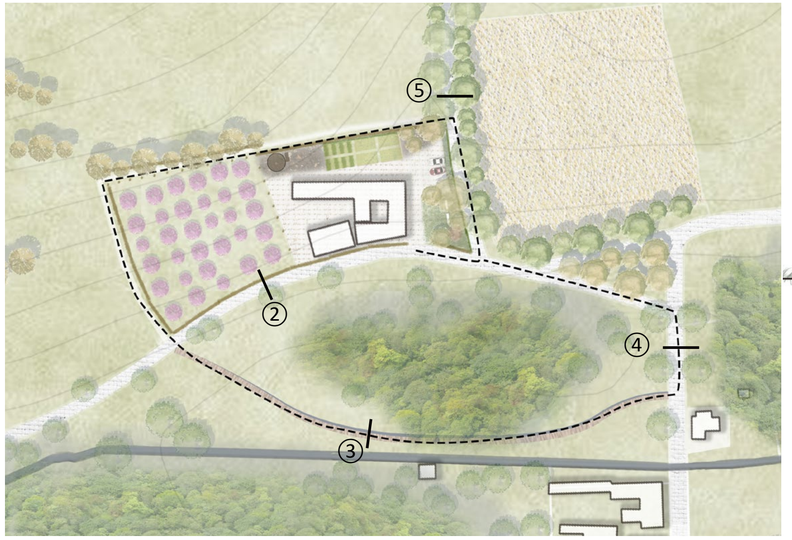
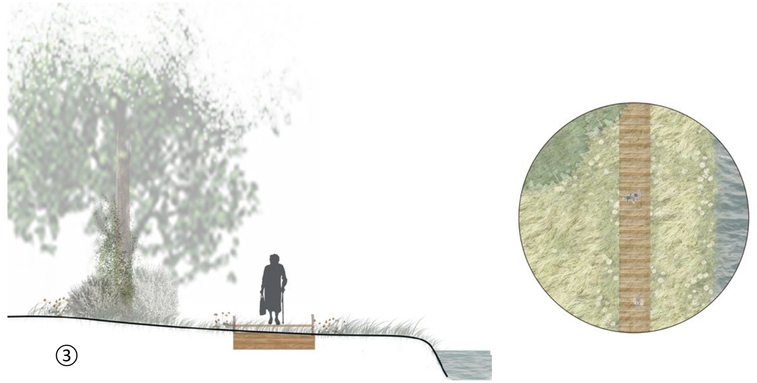


②



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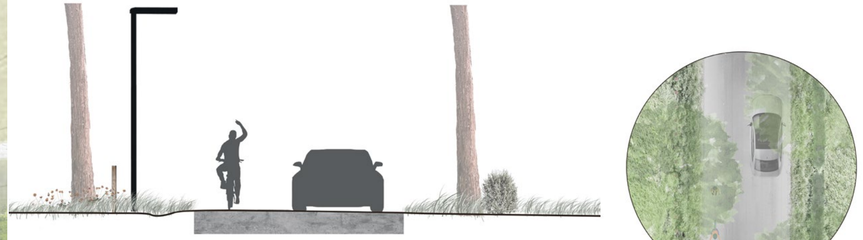

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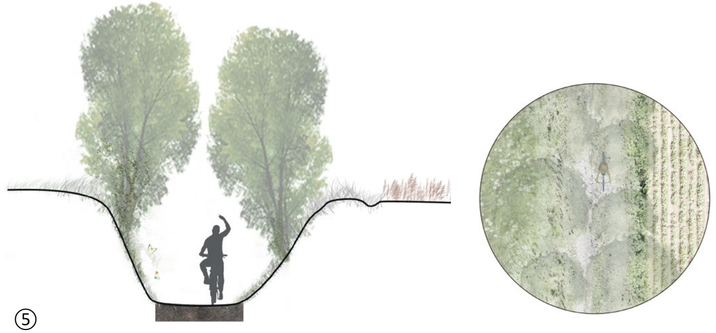
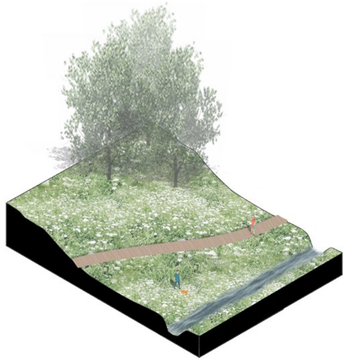
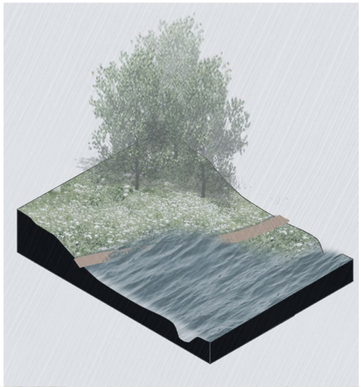
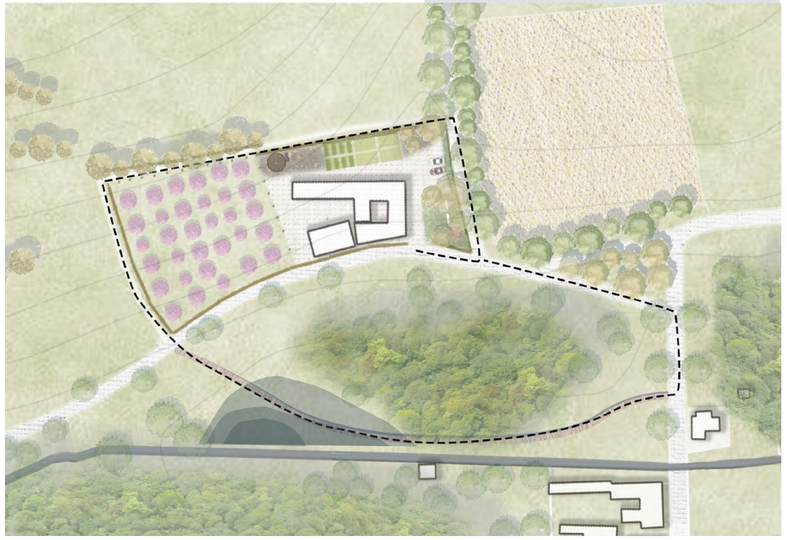


⑤

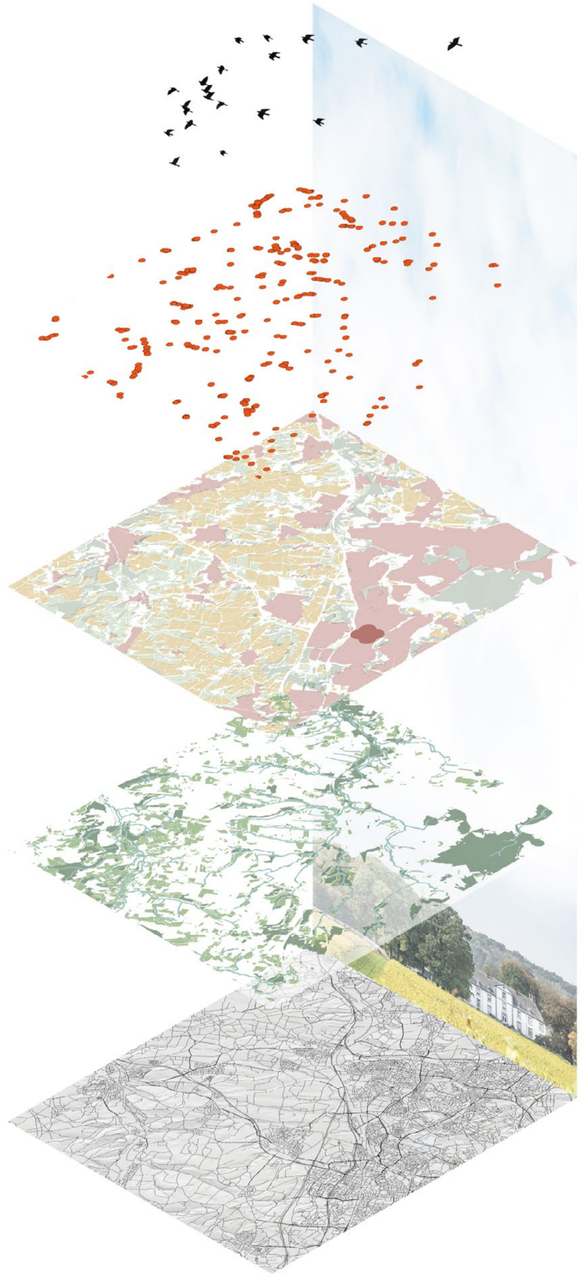
convenient mobility
easy access to all facilities and being free to move around within the green care farm; safe pedestrian routes within the neighborhood



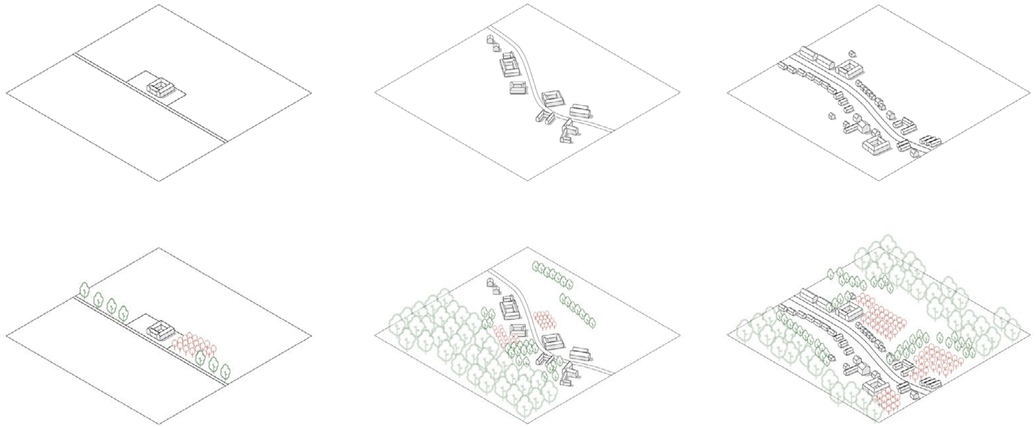




Regional scale - analysis

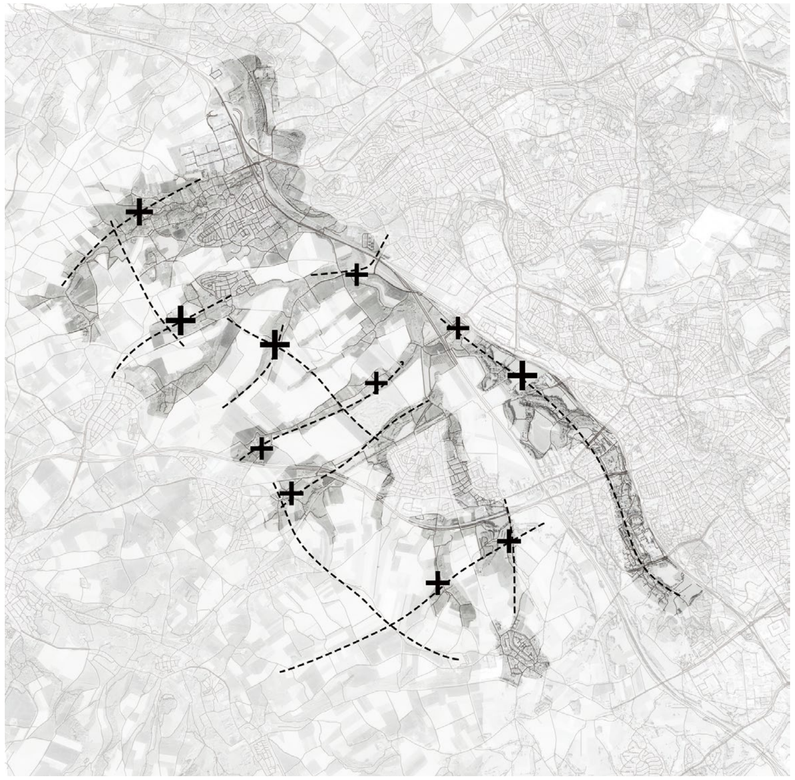


Regional scale - analysis



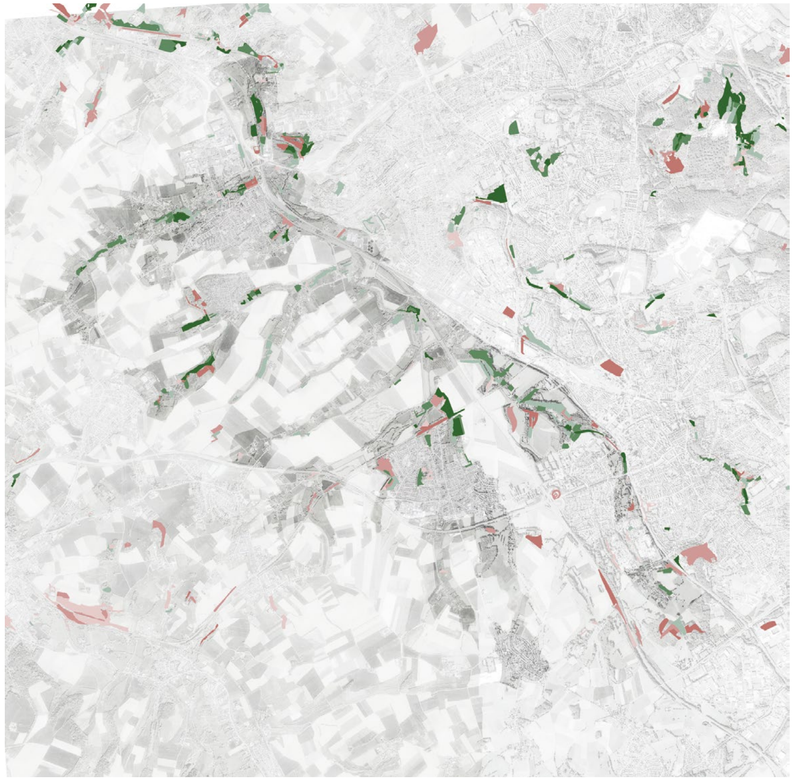
Regional scale - strategy

400 meters range of bus station
Bus transportation mostly covers rural agglomerations, while small and separate villages are not easily accessible by bus.

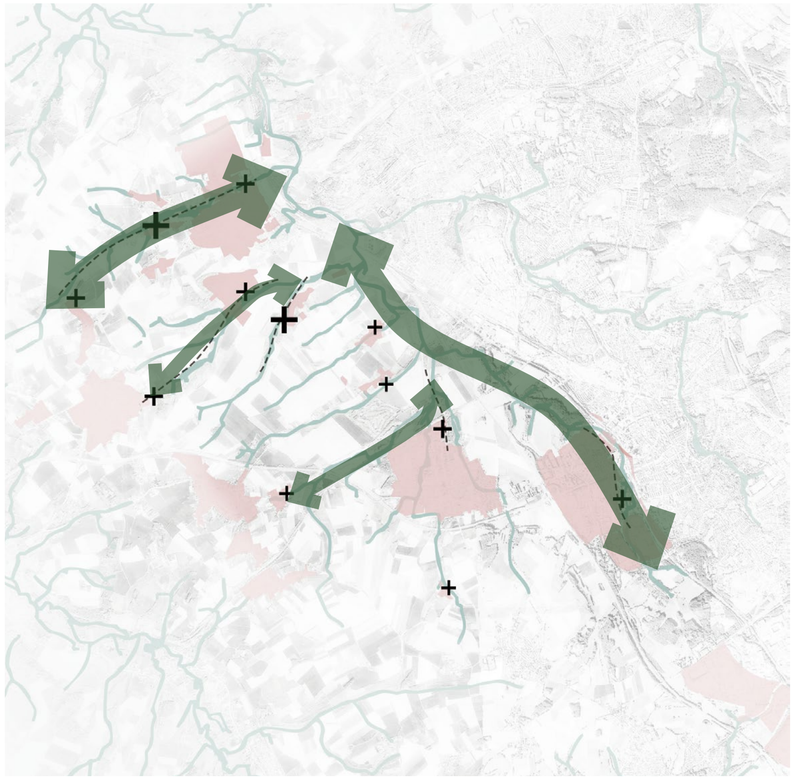


Adding parking spots and charging spots for e-bikes at road nodes to improve multi-speed transportation systems for a better mobility and accessibility in the region.

Regional scale - strategy

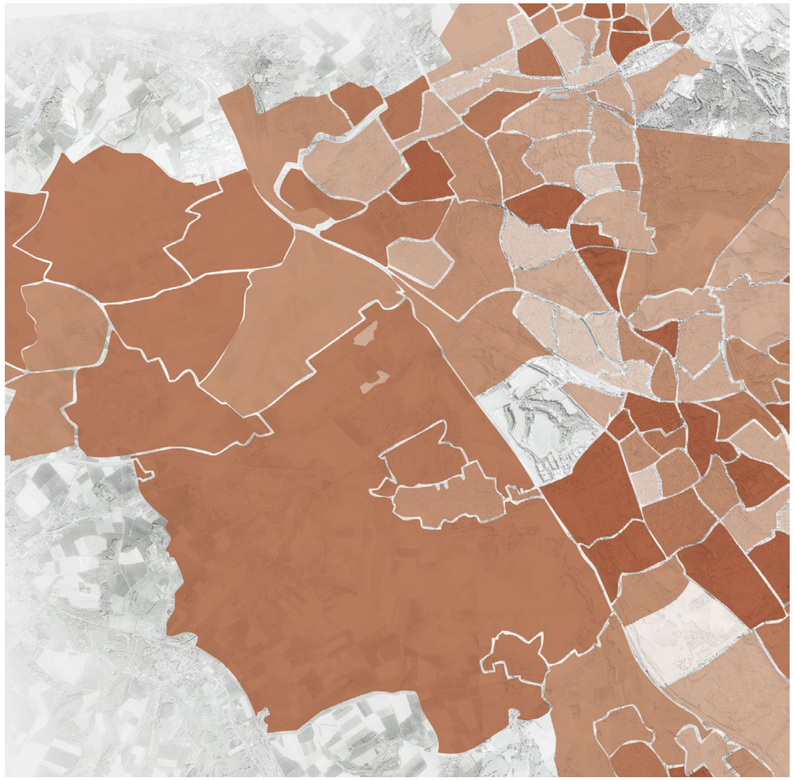


Desiccation sensitivity
well developed vegetation area and poorly developed are mixed. The less developed areas can be improved with help of well developed ones.



Focusing on the green edge, particularly the edge with historical ribbon villages; and strengthening landscape character and spatial structure.

Regional scale - strategy



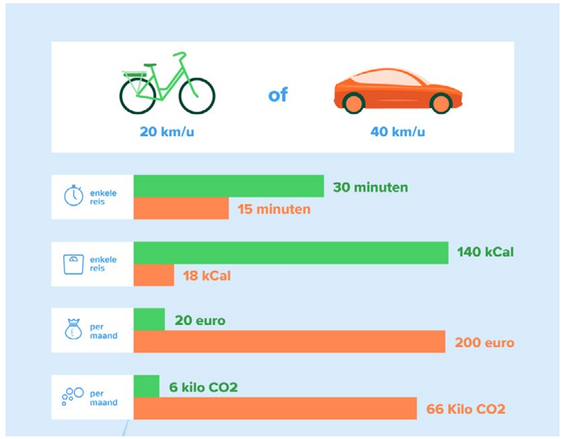
High accummulation of elderly people is mainly in urban area. The percentage difference among different communities is smaller in rural than in urban.

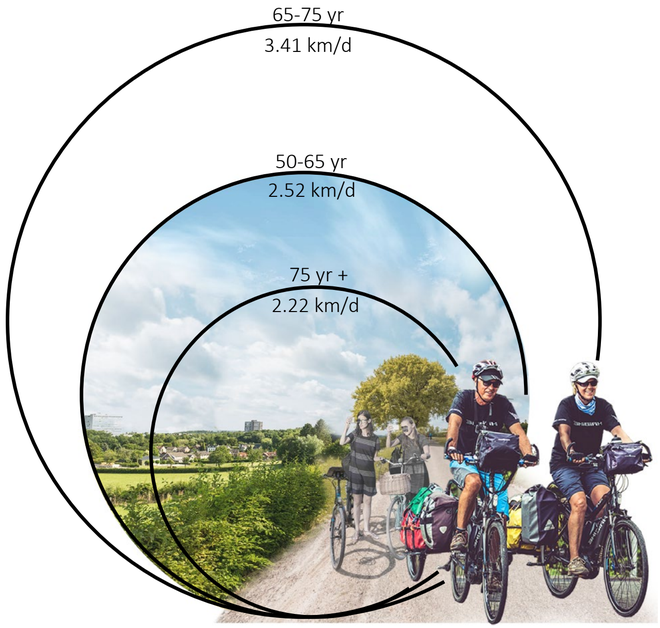
Looking for potential outdoor public space in a community, not only for the elderly, but for the expanding neighborhood in the future as well.

Regional scale - design

Regional scale - design

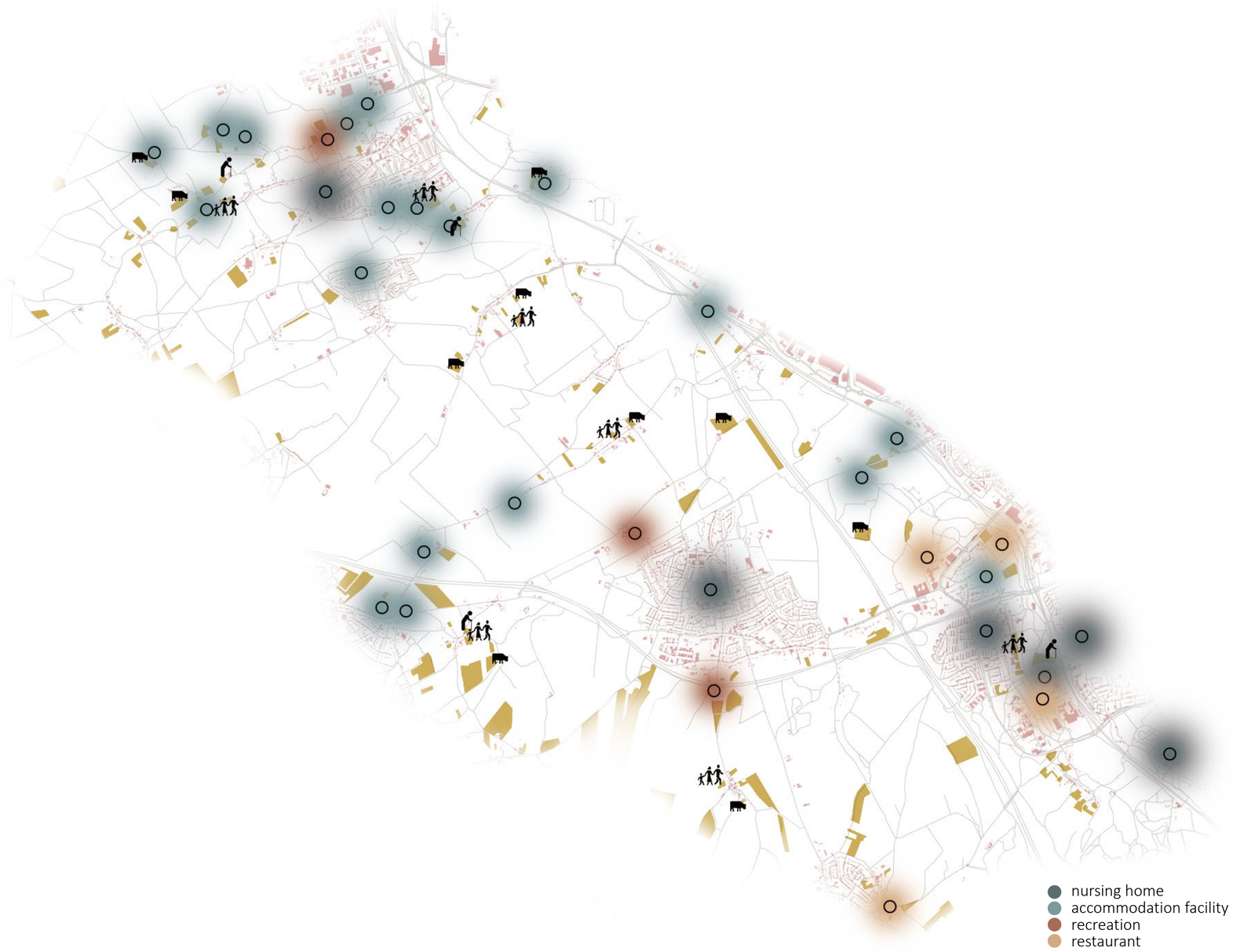
cycling network

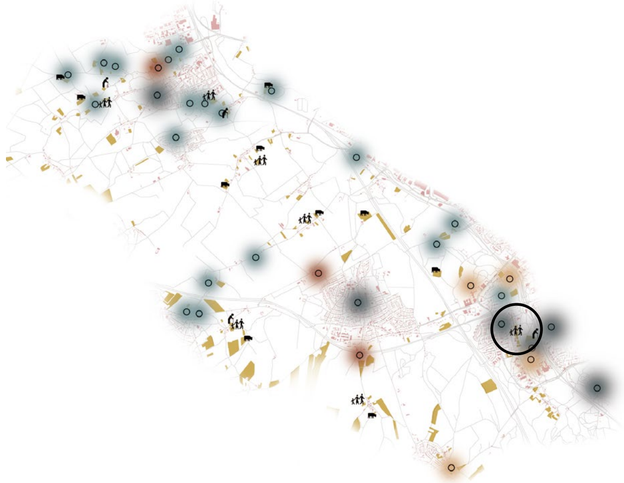




Regional scale - design

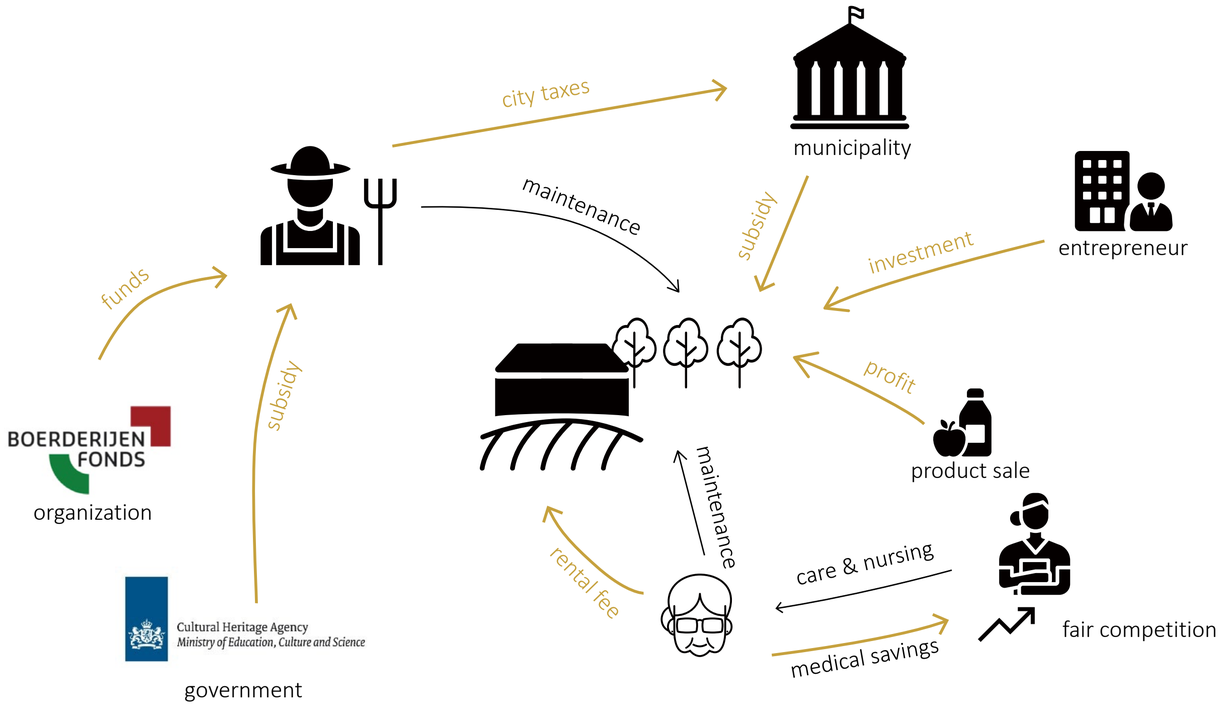
communal functions



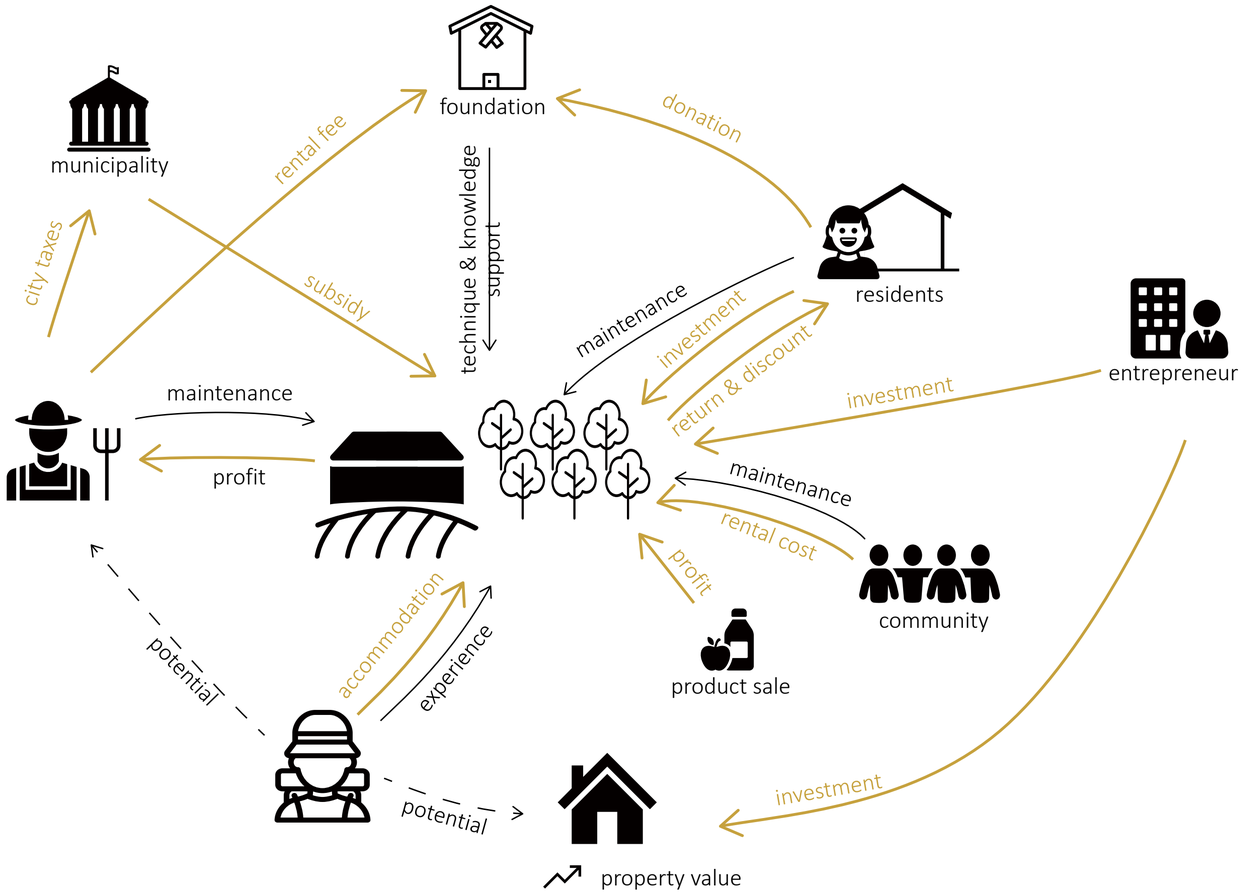


PICK
ME!

Regional scale - management



Regional scale - management



Thank you for listening