

**MSc THESES
OVERVIEW
LANDSCAPE
ARCHITECTURE
GROUP**

201920

September 2019 - August 2020

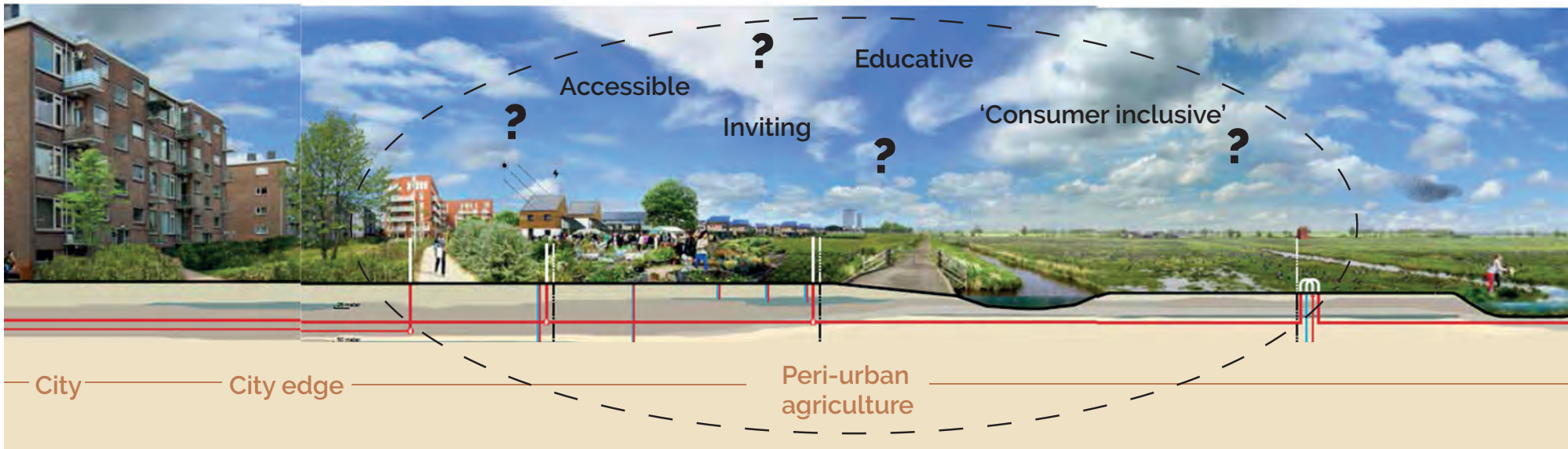


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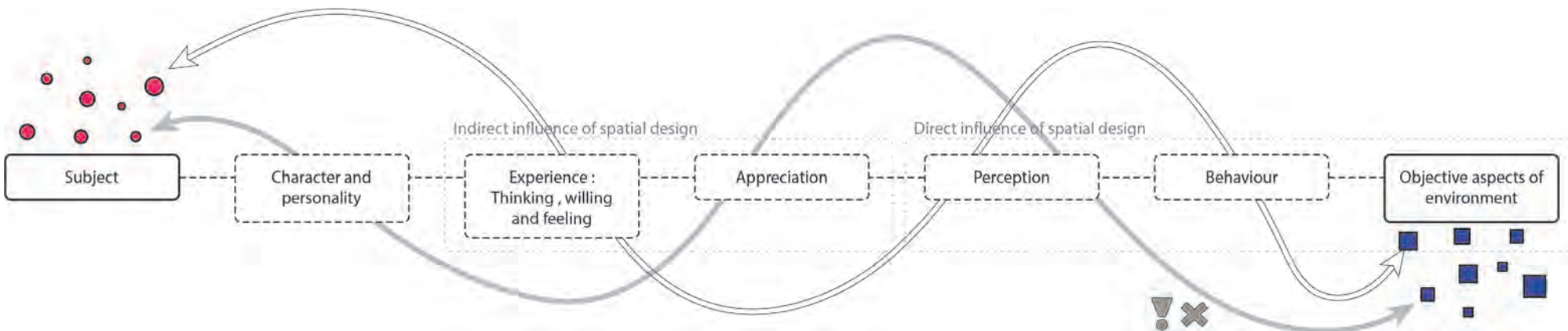
September 2019 - August 2020

- **Merel Gerritsen**
- **Michiel Bakx**
- **Jelmer Boersma**
- **Merel Cozijnsen**
- **Pamela Kuchenbecker**
- **Xinchang Tong**
- **Alexandra van Zyl**
- **Coos van Ginkel**
- **Joran Lammers**
- **Sjjors de Greeff**
- **Amerens Lock**
- **Dominik Kriska**
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- **Marieke van Oostveen**
- **Mengli Zhou**
- **Diana Lukjanska**
- **Florian Becker**
- **Joep van der Ven**
- **Robert Bikker**
- **City meets dairy landscape. Developing food-revelatory design principles to design a productive and experiential dairy landscape in the Amstelscheg. (Amstelscheg area, the Netherlands).**
- **Lessons from the past. Historical landscape elements for passive outdoor microclimate control in contemporary Dutch cities.**
- **Sustainable urban wetland development in India. A case study for Ramsar site Deepor Beel Generating design guidelines to promote the sustainable development of wetland areas in the vicinity of rapidly exapnding cities.**
- **03:37 - Amatrice still exists. Disaster recovery design for the post-quake landscape of Amatrice.**
- **Humanizing streets. The Superblock in the Eixample, Barcelona, Spain.**
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- **The Drought Resilience Casco. A New Drought Resilience Casco for the High Sand Landscapes: A Case Study of the Baakse Beek-Veengoot System.**
- **TWIN VILLAGES. Harmonizing settlement development with the agricultural reclaimed landscape of the Rhenish Mining Area in Germany.**
- **ECO SOLAR CORRIDOR. Discovering the symbiotic strength of utility-scale solar energy systems and ecological networks in Brummen, the Netherlands.**
- **Landscape, a healer for the elderly. Explore a salutogenetic and activating living environment for the elderly + Zwanenveld, Netherlands.**
- **A healthy campus. Introducing healing landscape into Utrecht University. Utrecht, the Netherlands.**
- **Urban Energy landscape--Circular Energy Park. Transformation of Hemwegcentrale.**
- **Experience Bandung Tempo Dulu. Creating walkable public space which narrates a shared heritage, Bandung Indonesia.**
- **RESILIENT RIVERS. An explorative design research into acquiring flood-resilient design principles in Dutch river systems.**
- **Synergy of urban ventilation and flood defence.**
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- **Green+Blue. Towards a more resilient urban living environment based on a holistic understanding of the nexus among patterns, flows, and functions- a case study in stationsbuurt,NL.**
- **Illuminating The Blind Field. landscape Infrastructure as intervention: Guideline for a sustainable energy landscape in dynamic urban territory. Amsterdam, The Netherlands.**
- **FROM TUBE FACTORY TO NARRAITVE IDENTITY. Tao design inspirations for the Hong Guang Electronic Tube Factory of Chengdu.**
- **Rotterdam: ready to roll? A phenomenological research about wheelchair accessibility in urban districts - the Tarwewijk.**
- **Internationalized campus landscape. By transforming Wageningen University into a campus landscape suitable for international user groups led by the Chinese community, explore the principles of campus landscape design in a multicultural context.**



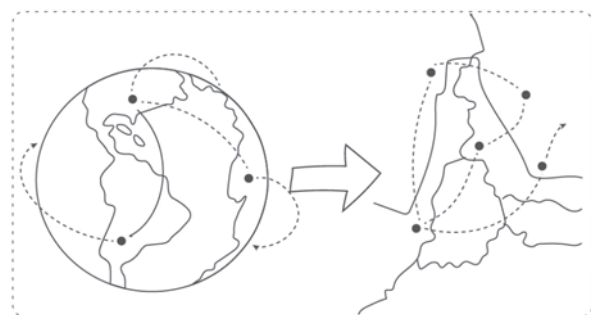
How to design productive and experiential peri-urban food landscapes?

(Adapted from CRA, 2018)

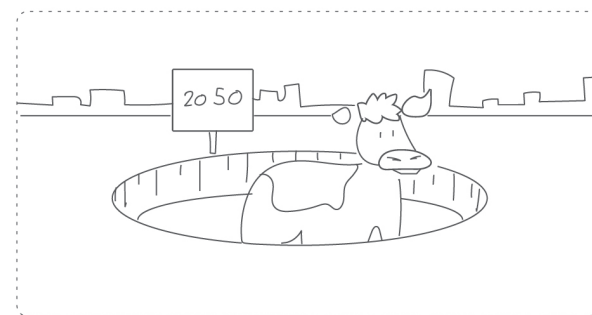


The eco-revelatory design approach is concerned with how people experience, understand and connect with their living environment

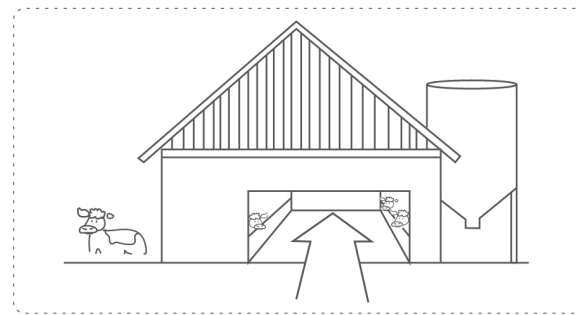
(Adapted from Coeterier 2000)



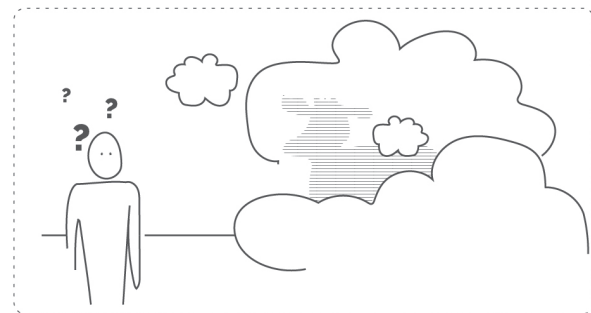
Food system with a seizable scale



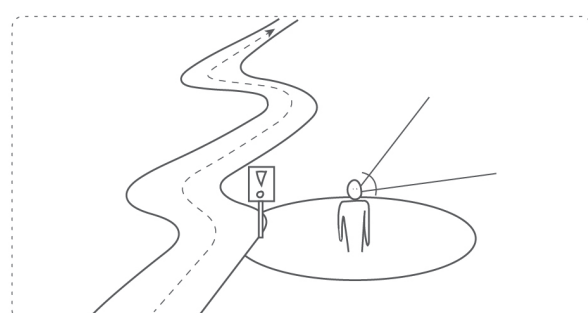
Make processes of time perceivable



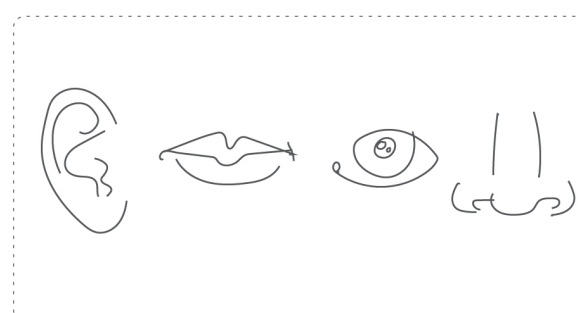
Acces and experience



Attract the attention of the public



Experience stops



Strengthen and expand the sensory experience

Six of the thirteen developed food-revelatory design principles

M.E.J. (Merel) Gerritsen

Dr. K.M.C. (Kevin) Raaphorst MSc

S.H. (Sjoerd) Brandsma MSc

City meets dairy landscape

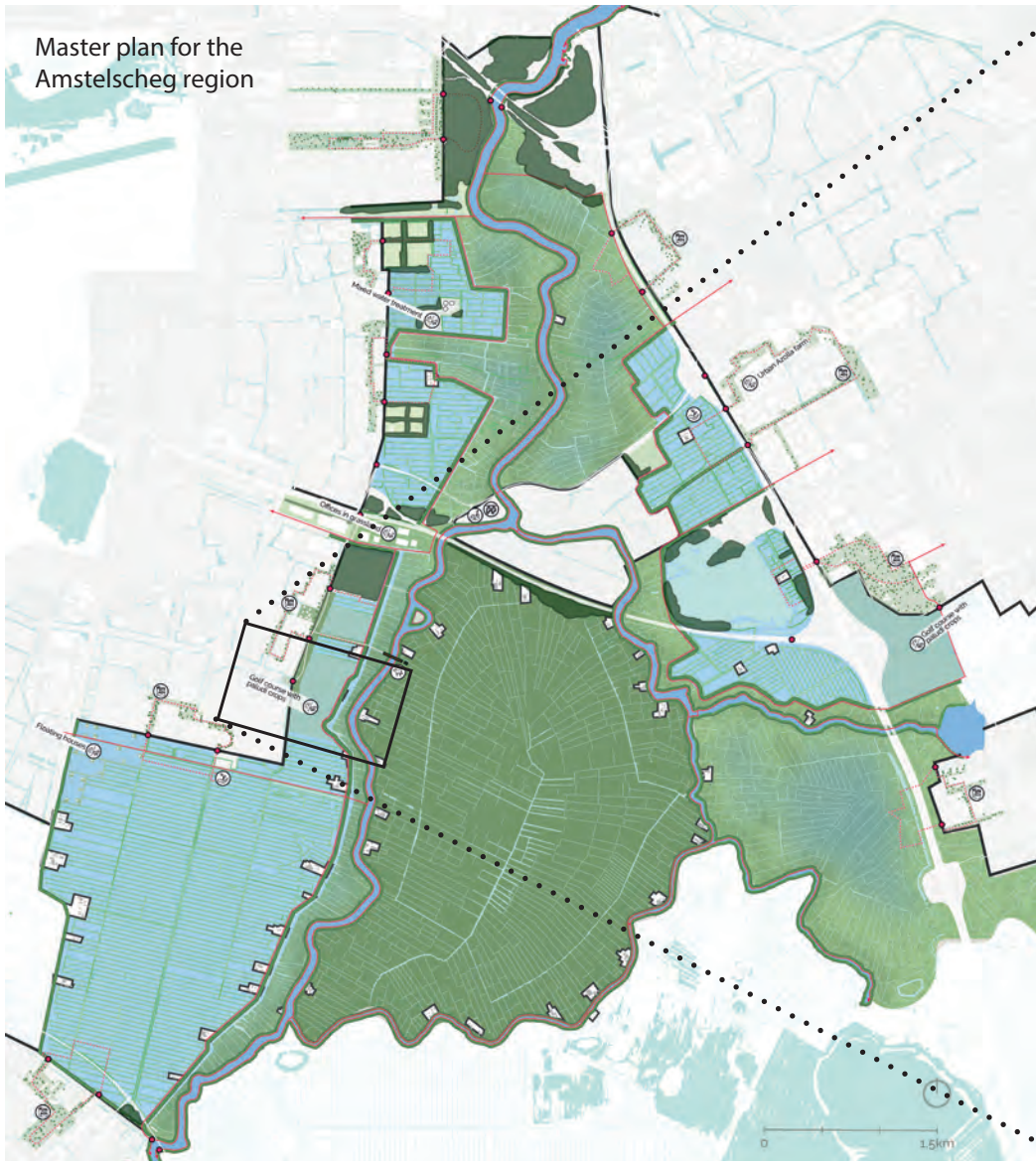
Developing food-revelatory design principles to design a productive and experiential dairy landscape in the Amstelscheg. (Amstelscheg area, the Netherlands)

Abstract

The physical and psychological rift between food production and consumption that is present within our food system is problematic in the light of the ongoing transition towards a more sustainable and resilient food systems and therefore needs to be reduced. The aim of this thesis was to expand knowledge on the design of productive and experiential food landscapes in city regions. This thesis explores how relevant and useful the existing eco-revelatory design principles are for designing productive peri-urban food landscapes that, besides the production of food, also facilitate more direct physical and psychological connections between food production and consumption.

The eco-revelatory design approach acknowledges humans as integral components of ecosystems and is concerned with how people experience and understand landscapes and connect with them. The Amstelscheg area, a typical productive peat meadow landscape located within the metropolitan region of Amsterdam, served as test case for the development of a set of design principles. Thirteen food-revelatory design principles have been developed and form an answer to the main question 'What food revelatory design principles can be developed for designing an Amstelscheg dairy landscape that facilitates the reduction of the rift between food production and consumption?'

The principles have been formulated based on revelatory themes such as human scale, sensor perceptibility, proximity, attention and complexity. Six of the thirteen food-revelatory design principles provided input for a master plan for the Amstelscheg region. The plan includes a shorter and more complete dairy food chain, a more extensive recreation network and a multifunctional city edge zone. All principles provided input for several designs on a smaller scale level within the Amstelscheg region, among which a design for a bicycle bridge in the shape of a 'sunken cow'. Besides the physical connection that is created with this bridge, the design of the bridge also aims to create attention and awareness for the ongoing process of peat soil subsidence that is hidden behind the production of dairy products.



Master plan for the Amstelscheg region



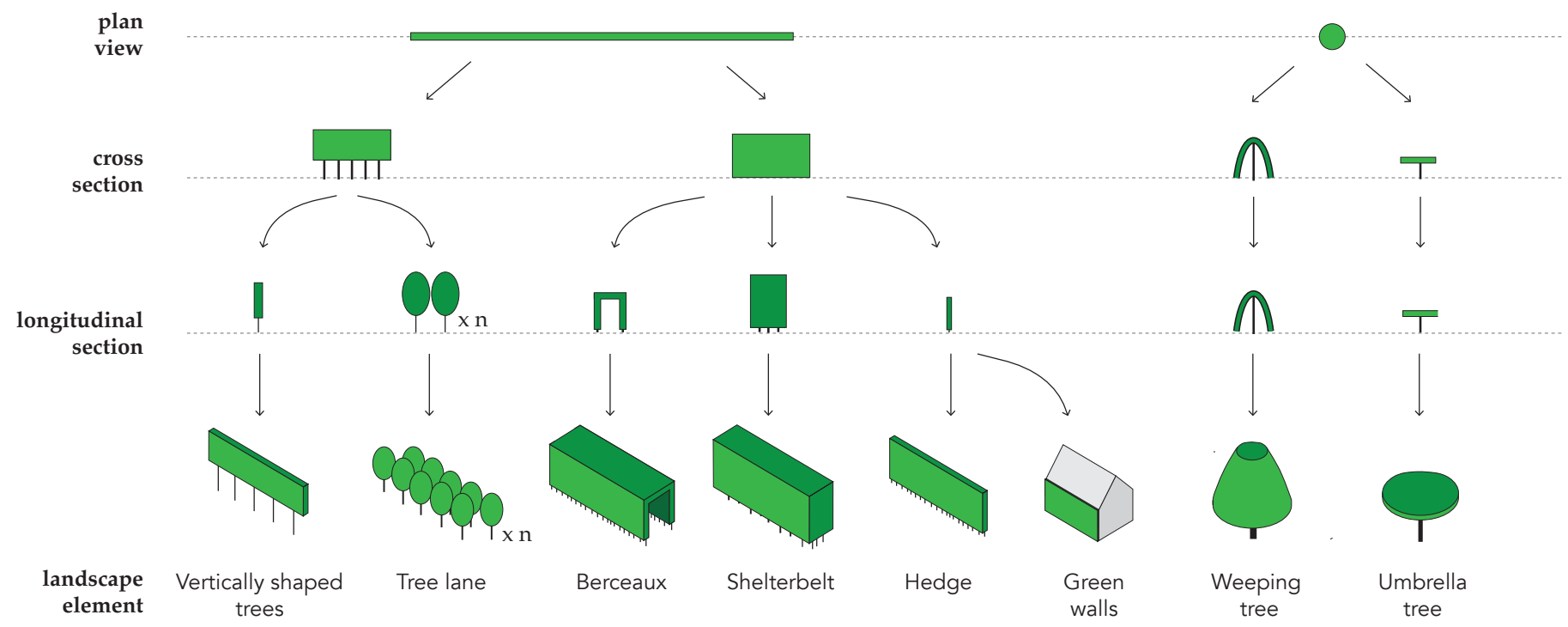
Design for the city edge of Amstelveen



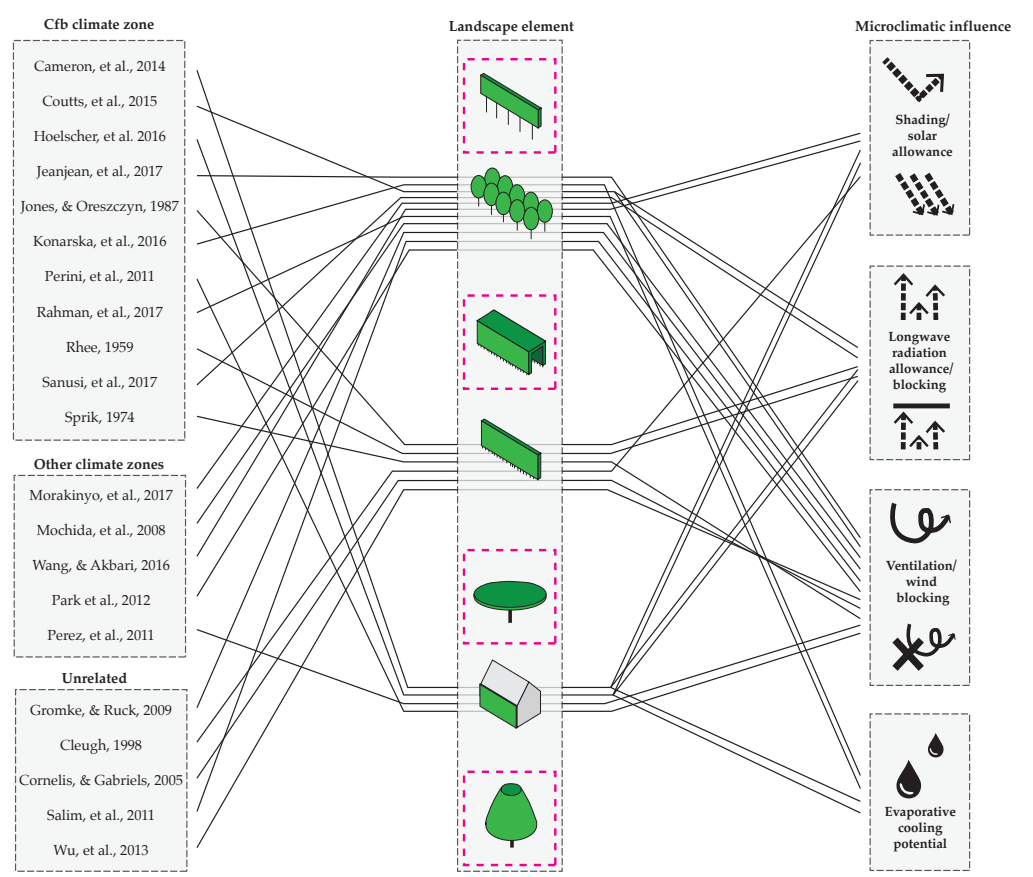
Impression of the mixed farm and co(w)rridor



Impression of the 'sunken cow' bicycle bridge



Overview historical landscape elements for microclimate control

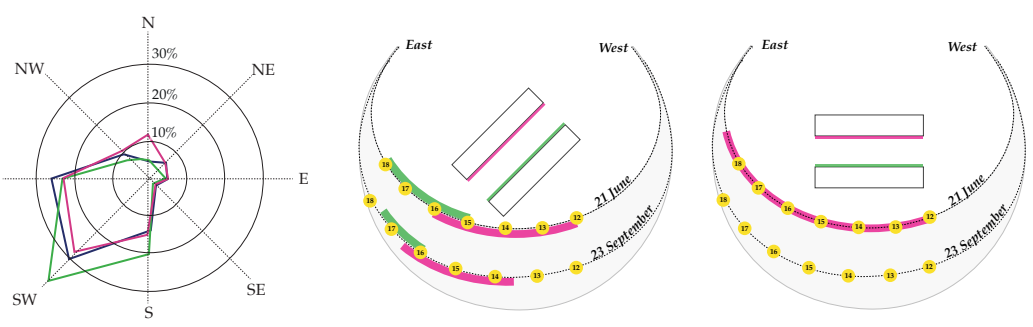


Literature review of microclimatic effects historical landscape elements.

	Vertically shaped trees	Weeping tree	Berceau	Umbrella tree
Influence on heat stress				
Shading	+	++	+++	++
Ventilation	+++	+	+	++
Longwave radiation allowance	+++	+	+	++
Influence on cold stress				
Solar allowance	+++	+	+	++
Wind blocking	+	+++	+++	++
Longwave radiation trapping	+	++	+++	++

Microclimatic effects according to ENVI-met simulations.

	SW-NE	E-W	SE-NW	N-S
Solar radiation during afternoon on 21 June (hours)	6	6	4¾	4¾
Solar radiation during afternoon on 23 September (hours)	4	0	1¾	3½
Wind gusts > 5m/s	>30%	20-30%	<20	20-30%



Wind and solar patterns in relation to thermal comfort for different street orientations. SW-NE and E-W street are most prone to both heat and cold stress.

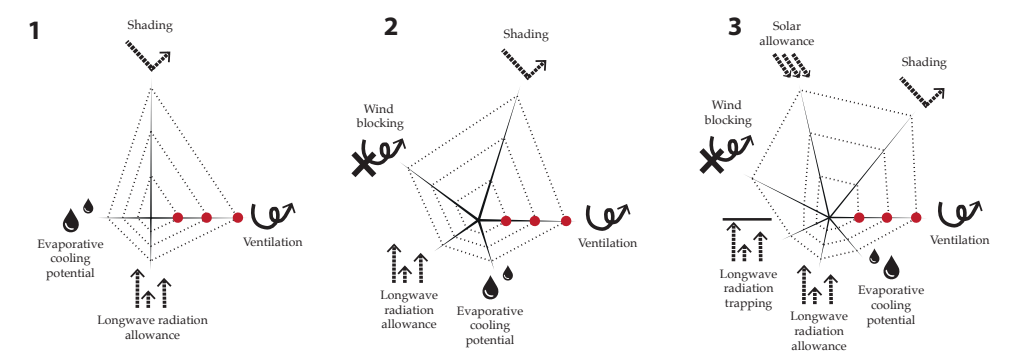
Michiel Bakx
Supervisor: dr. dipl. ing. Sanda Lenzholzer

Lessons from the past
Historical landscape elements for passive outdoor microclimate control in contemporary Dutch cities

Abstract
Urban microclimatic phenomena such as the urban heat island effect and urban wind nuisance are detrimental to outdoor space quality. While the urban heat island effect will become more severe with climate change, it becomes ever more urgent to provide passive urban microclimate control measures. One way to come up with new measures for microclimate control is through studying precedents from the past. This is based on the belief that historical landscapes evolved from centuries of knowledge about dealing with climatic conditions.

By means of a historical literature review, this thesis demonstrated that tree lanes, vertically shaped trees (“leilindes”), berceaux, hedges, shelterbelts, green walls, umbrella trees (“etagelindes”) and weeping trees were in certain cases purposefully planted for microclimate control. Through a scientific literature review, the microclimatic performance of tree lanes, green walls, hedges and shelterbelts is identified. The software ENVI-met is used to gain novel insights into the microclimatic effects of vertically shaped trees, berceaux, umbrella trees and weeping trees. Overall, the results indicated that all historical landscape elements have potential to enhance thermal comfort.

Eventually, during a research through design process, new prototypes of the historical landscape elements were designed and evaluated to improve thermal comfort of contemporary Dutch shopping streets. The prototypes that most effectively reduced both heat and cold stress were virtually implemented in two real shopping streets. The results demonstrated which historical landscape elements are most able to improve thermal comfort of contemporary urban streets and how these have to be adjusted to this context. These prototypes broaden the scope of much wanted passive microclimate control measures.

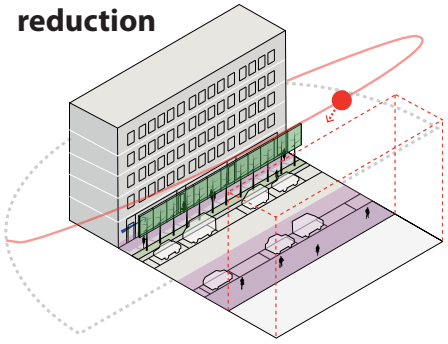


Evaluation format to assess heat stress reduction (1) and heat and cold stress reduction in East-West (2) and Southwest-Northeast (3) streets.

East-West oriented streets

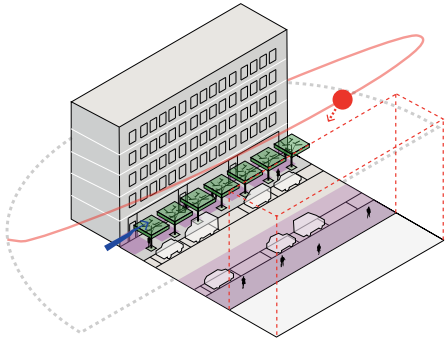
Heat stress reduction

Score 14.5



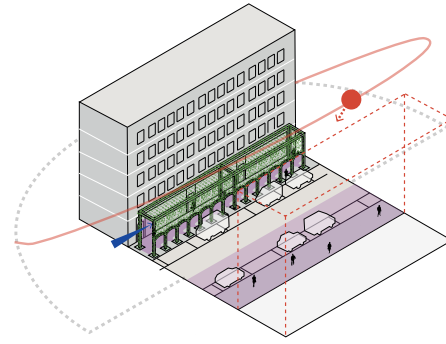
Parallel vertically shaped trees (N)

Score 14.5



Umbrella trees above sidewalk (N)

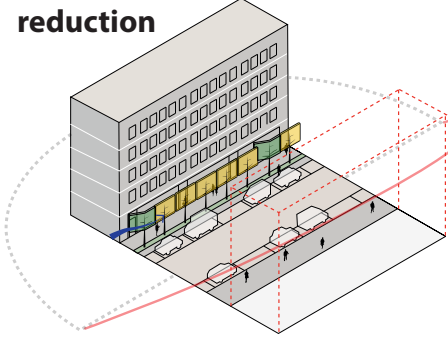
Score 16



Semi-closed berceau (N)

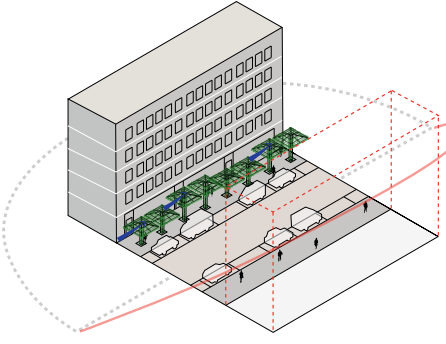
Cold stress reduction

Score 16



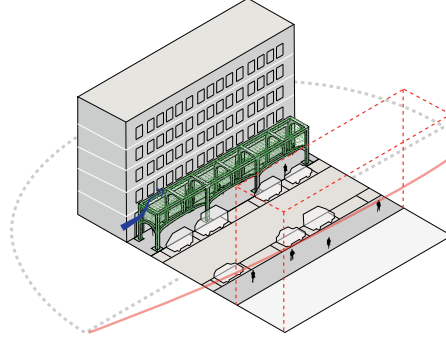
Mixed vertically shaped trees (N)

Score 16.5



Umbrella trees with alternating heights (N)

Score 16.5

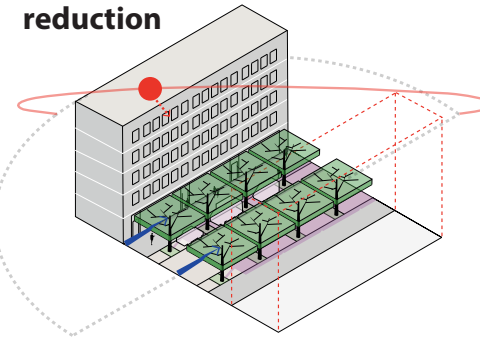


Berceau with semi-closed front (N)

Southwest-Northeast oriented streets

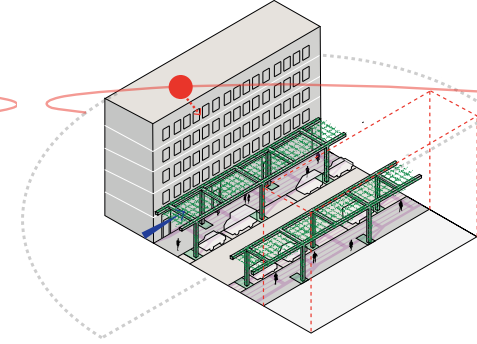
Heat stress reduction

Score 16



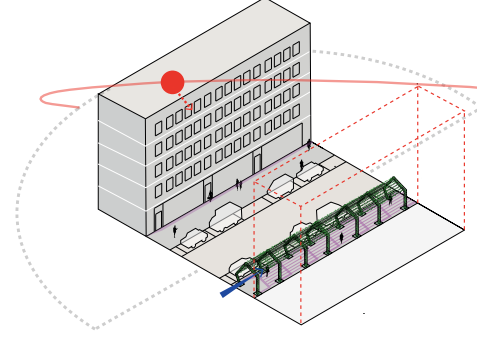
Wide umbrella trees (N+S)

Score 16.5



Berceaux above parking (N+S)

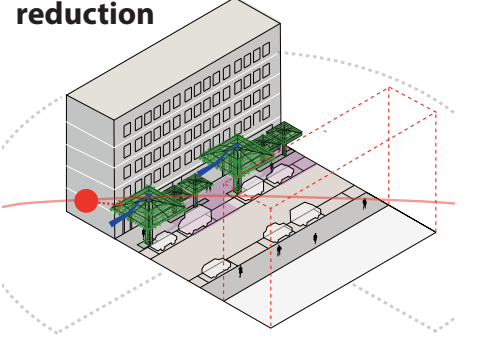
Score 15



Semi-closed berceau (S)

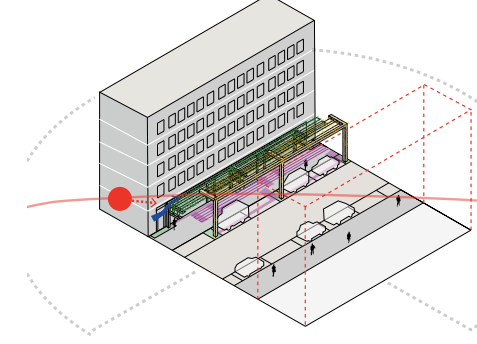
Cold stress reduction

Score 22



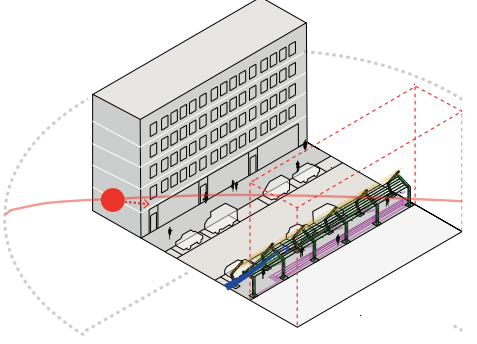
Mixed vertically shaped trees (N+S)

Score 26



Umbrella trees with alternating heights (N+S)

Score 26



Berceau with semi-closed front (S)

Implementation



The prototypes that most significantly reduced heat and cold stress are implemented in the Hoogstraat, Rotterdam.

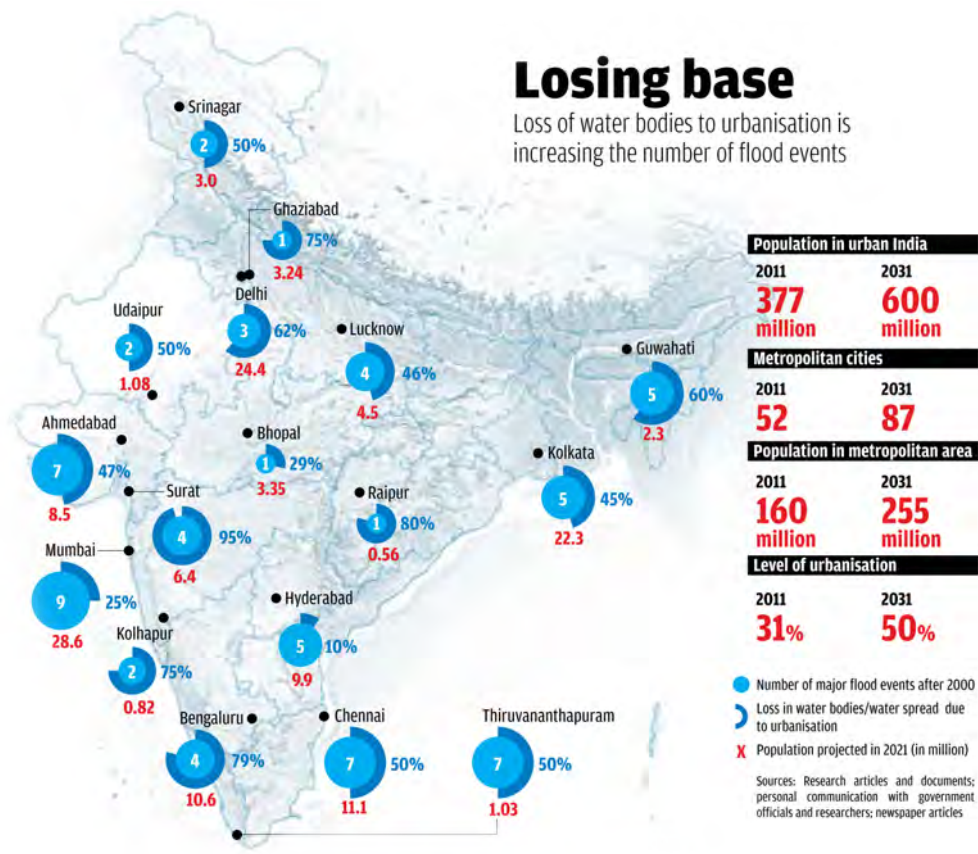
Implementation



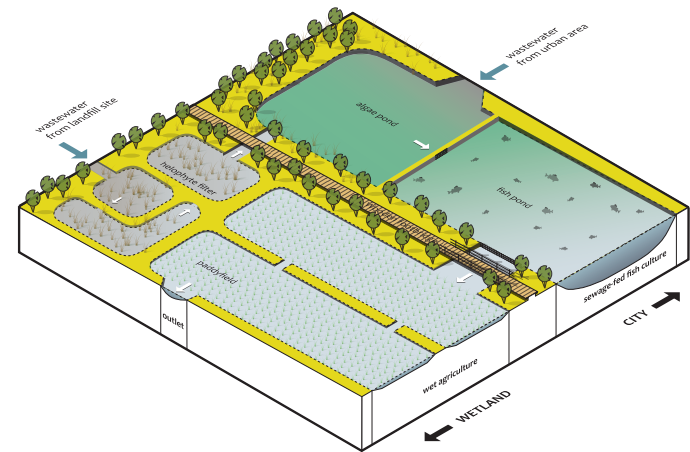
The prototypes that most significantly reduced heat and cold stress are implemented in the van Oldebarneveltstraat, Rotterdam.

Losing base

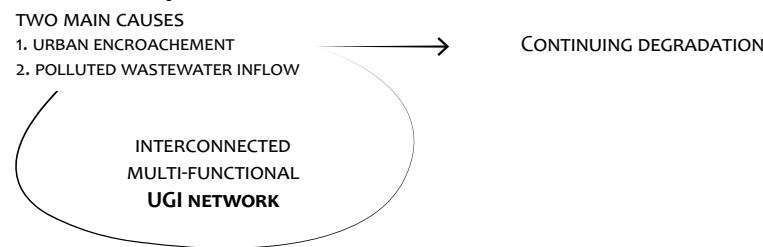
Loss of water bodies to urbanisation is increasing the number of flood events



There is a clear relation between the loss of urban water bodies due to urbanization and the number of major flood events in seventeen major Indian cities since the year 2000 (Centre for Science and Environment, 2016)



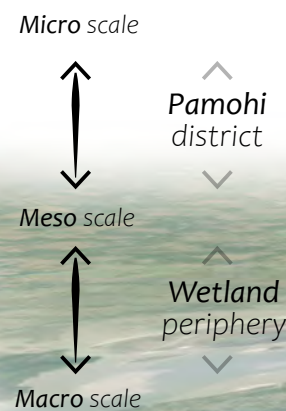
URBAN WETLAND DEGRADATION IN INDIA



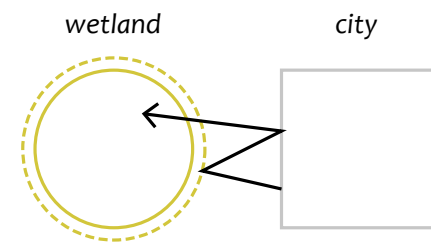
Example of a preliminary design guideline: constructed wetlands. This design guidelines was generated by means of a reference study (East-Kolkata wetlands in Kolkata) and a supplementary literature study

The analysis has been conducted at three different spatial scales, while the design has been generated in between these three levels at two different spatial scales

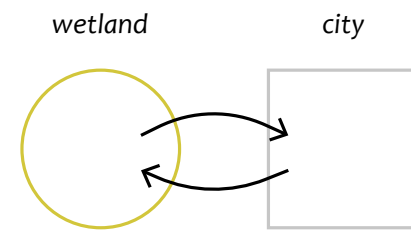
Analysis Design



Traditional conservation strategy



Modern conservation strategy



Two diagrams to show the changing strategy of urban wetland conservation over time, as used by the Ramsar Convention. While the traditional (left) stimulates a more inimical relationship between a wetland a city, the modern (right) one promotes mutual benefits. In the latter, the wetland provides good and services from which the city benefits, and in return the wetland receives respect and protection.

The UGI approach applied to develop urban wetlands in India in a sustainable way

1. GUIDING URBAN DEVELOPMENT
2. PURIFYING URBAN WASTEWATER

SUSTAINABLE URBAN WETLAND DEVELOPMENT

Jelmer Boersma

Supervisors (WUR): Adri van den Brink, Rudi van Etteger
External supervisor (Arcadis): Timo Cents

Sustainable urban wetland development in India: a case study for Ramsar site Deepor Beel

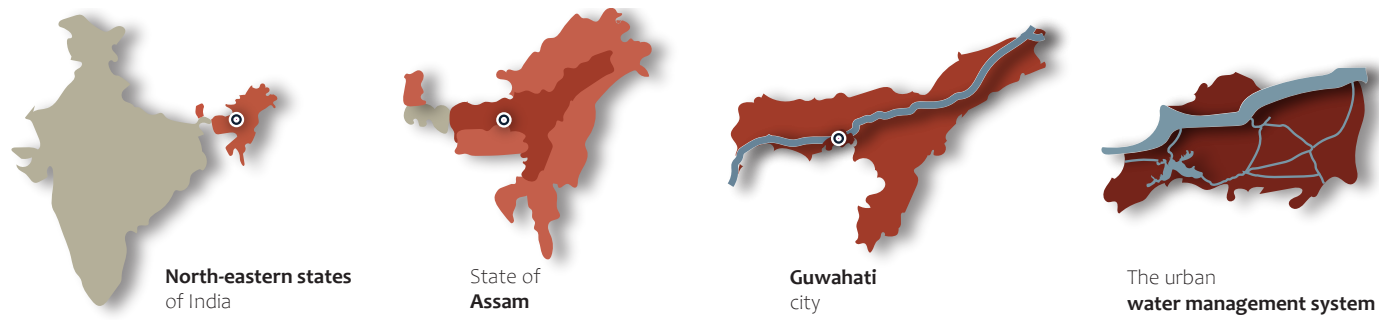
Generating design guidelines to promote the sustainable development of wetland areas in the vicinity of rapidly expanding cities

Guwahati, north-east India

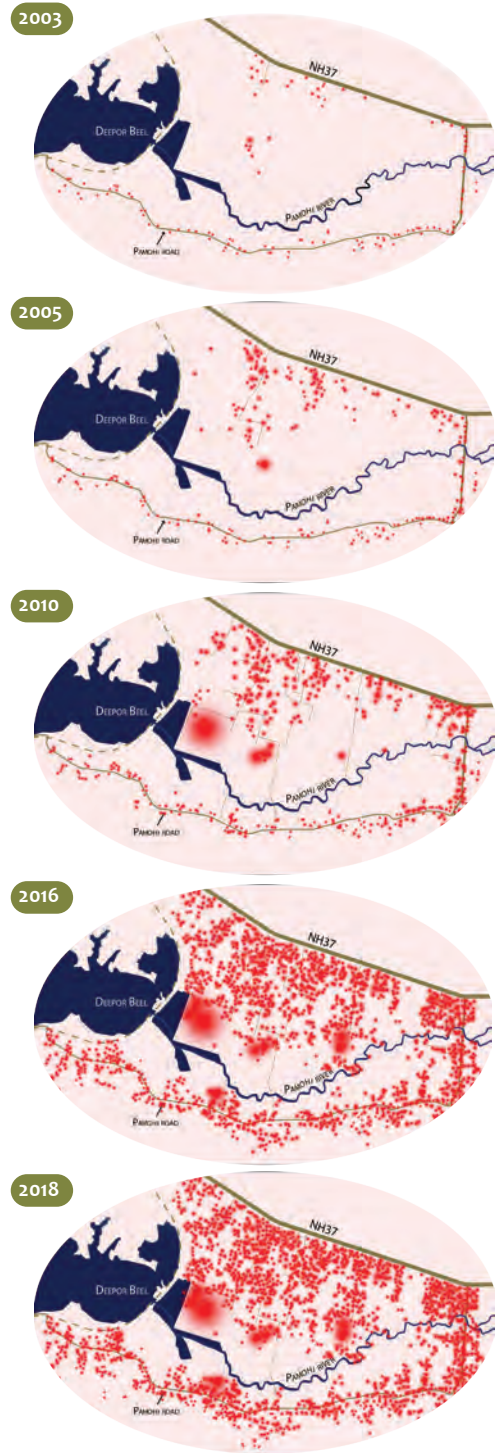
Abstract

Urban water bodies have always been playing a vital role in the water management system of Indian cities. Despite the provision of important functions to urbanized areas, the current speed of urban wetland degradation in India is alarming. Wetlands in the periphery of urban areas are regarded in India as non-valuable wastewater, resulting in the two predominant causes of degradation: (1) urban encroachment and (2) the inflow of urban wastewater. The Urban Green Infrastructure (UGI) approach is introduced to secure the future sustainability of Indian cities. A multi-functional and interconnected UGI network potentially promotes the sustainable development of urban wetlands in India. On one hand, sustainable development is promoted by guiding urban development to counter urban sprawl and, on the other hand, by purifying the wastewater from urban areas entering the wetland.

To bridge the gap between the theoretical and practical realm in urban wetland design and conservation, spatial design guidelines are generated. First, practical measures have been defined by conducting a reference study of two Indian urban wetlands and supplemented by means of a literature study. Next, the applicability of these interventions to either guide urban development or purify wastewater has been evaluated based on an analytical framework. Thereafter, the outcomes have been translated into six preliminary design guidelines. The applicability of these guidelines in practice was tested in the case study area Deepor Beel, the last remaining major retention buffer in the city of Guwahati, located in the north-eastern part of India. Deepor Beel is an example of a wetland that is severely affected by the consequences of India's rapid urbanization, despite the recognition as an internationally important Ramsar wetland. After being tested in the case study design area, a total of five final design guidelines were identified to stimulate sustainable development of urban wetlands in India.

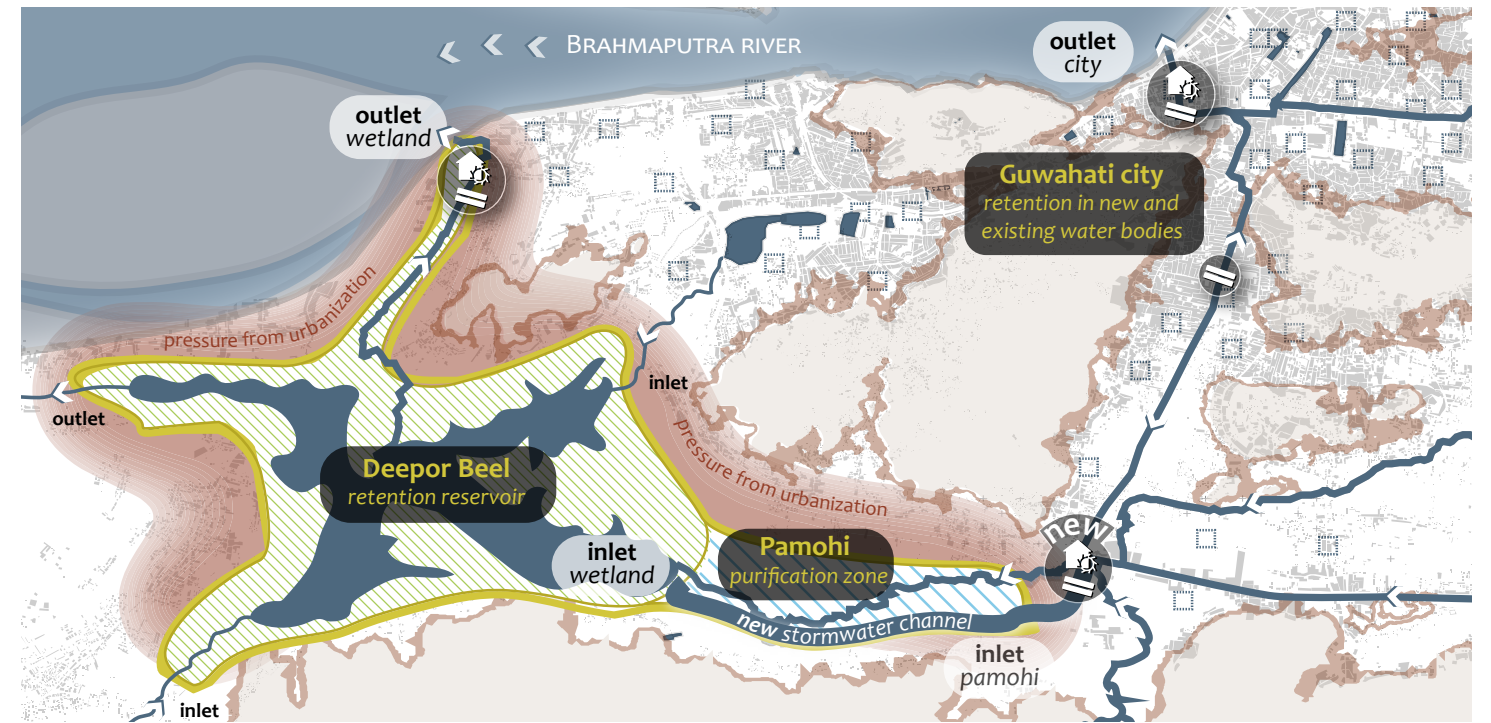
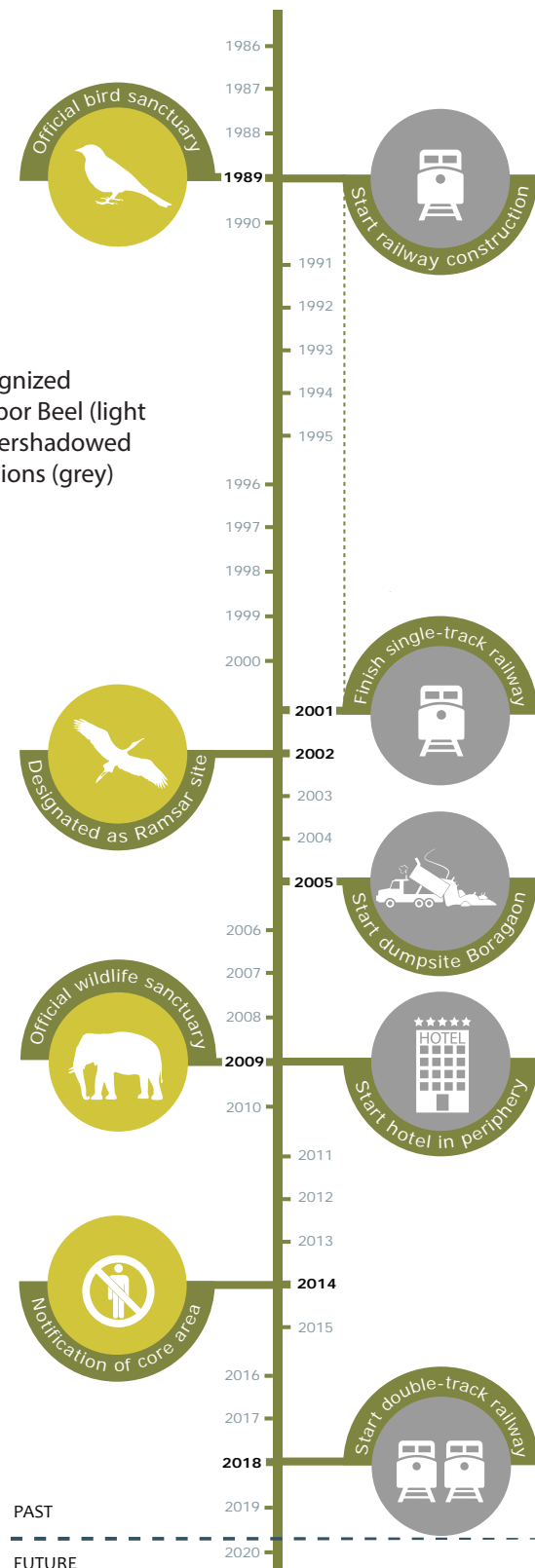


▲ The location of Deepor Beel (most right picture) with respect to the urban water management system of Guwahati city

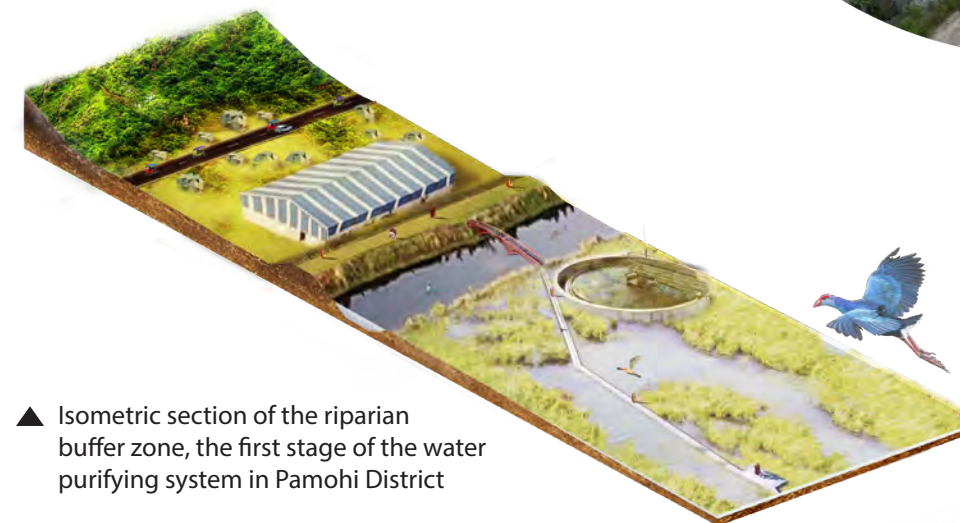


▲ Visualization of the rapid urbanization in Pamohi District over the period 2003-2018

► Over time, the recognized importance of Deepor Beel (light green) has been overshadowed by conflicting decisions (grey) multiple times

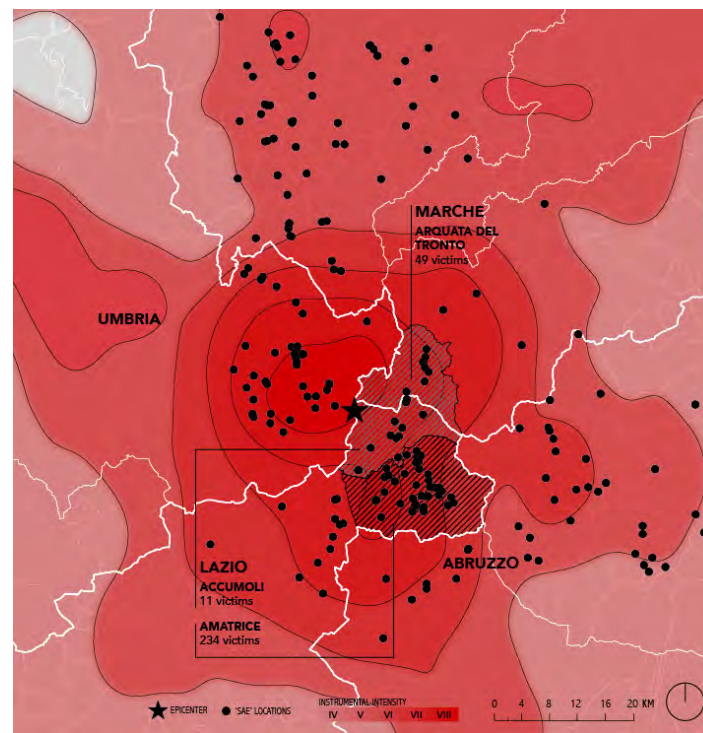
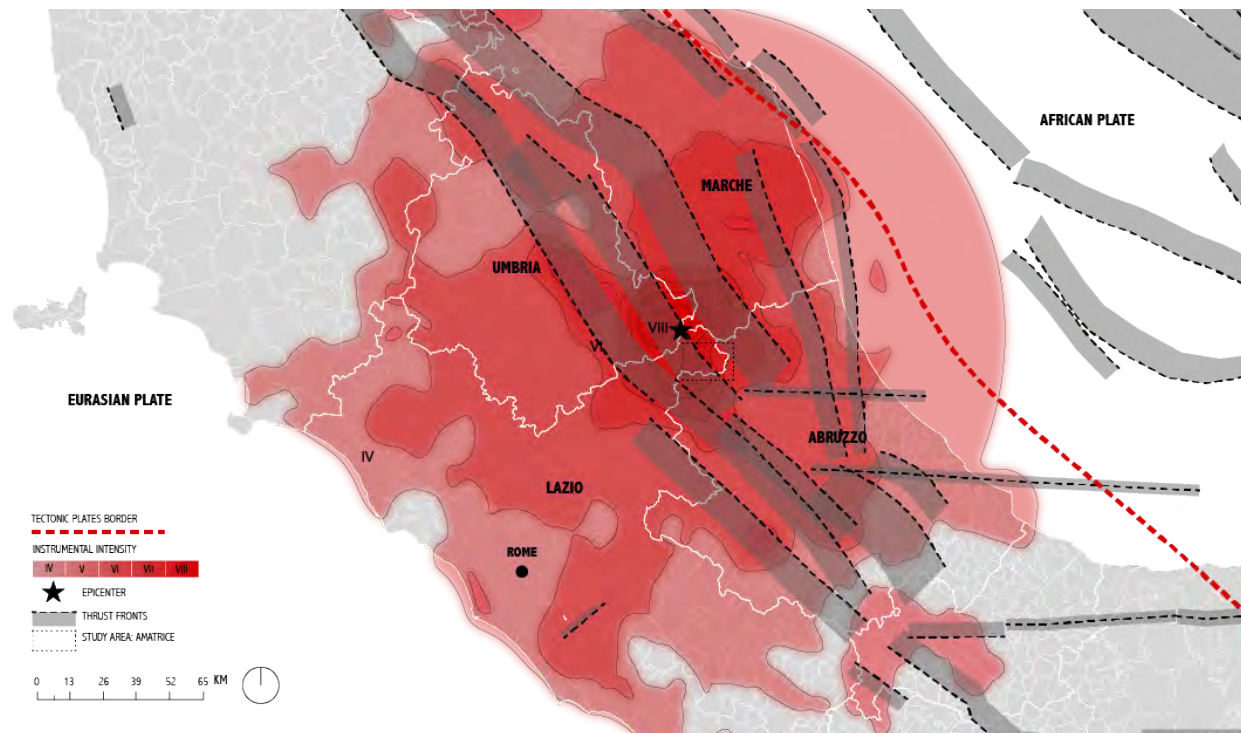


Conceptual design for the periphery of urban wetland Deepor Beel. A distinction has been made in three zones: (1) Guwahati city, (2) Deepor Beel (retention zone for stormwater storage) and (3) Pamohi district (purification zone for the treatment of wastewater)



▲ Isometric section of the riparian buffer zone, the first stage of the water purifying system in Pamohi District

▲ Visualization of a threshold during the dry (right) and the monsoon season (left). If the water reaches a certain tipping point in the wet season, the threshold is overflowed and ensures the free passage of the water to the retention reservoir Deepor Beel. During the dry season, the threshold ensures that the water is kept long enough in the specific area in order to be treated.



Merel Cozijnsen

First supervisor: Gabriëlle Bartelse
Second supervisor: Kevin Raaphorst

03:37 - Amatrice still exists

Disaster recovery design for the post-quake landscape of Amatrice

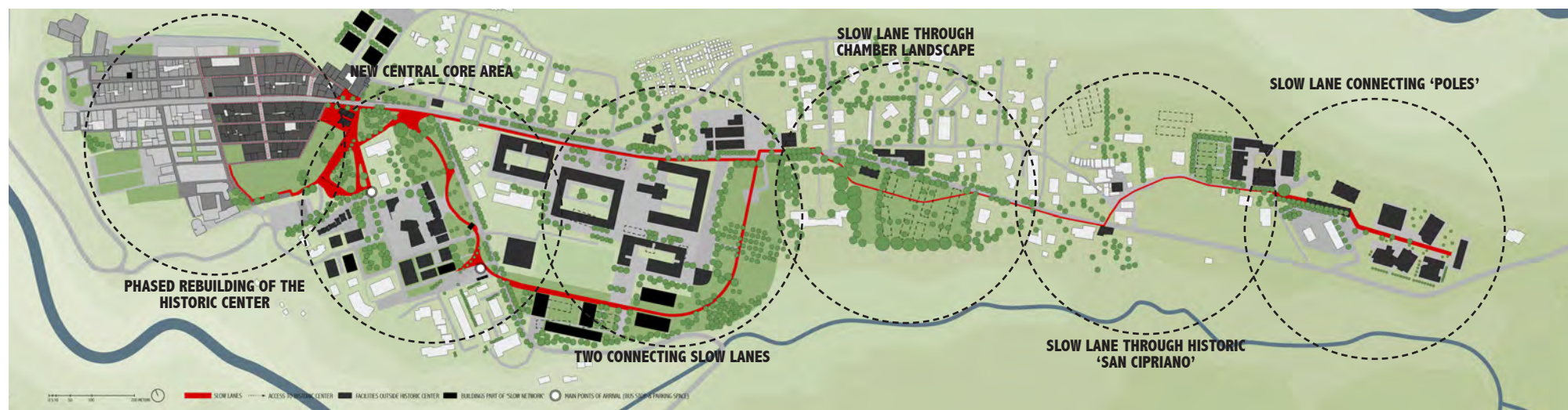
Amatrice, Italy

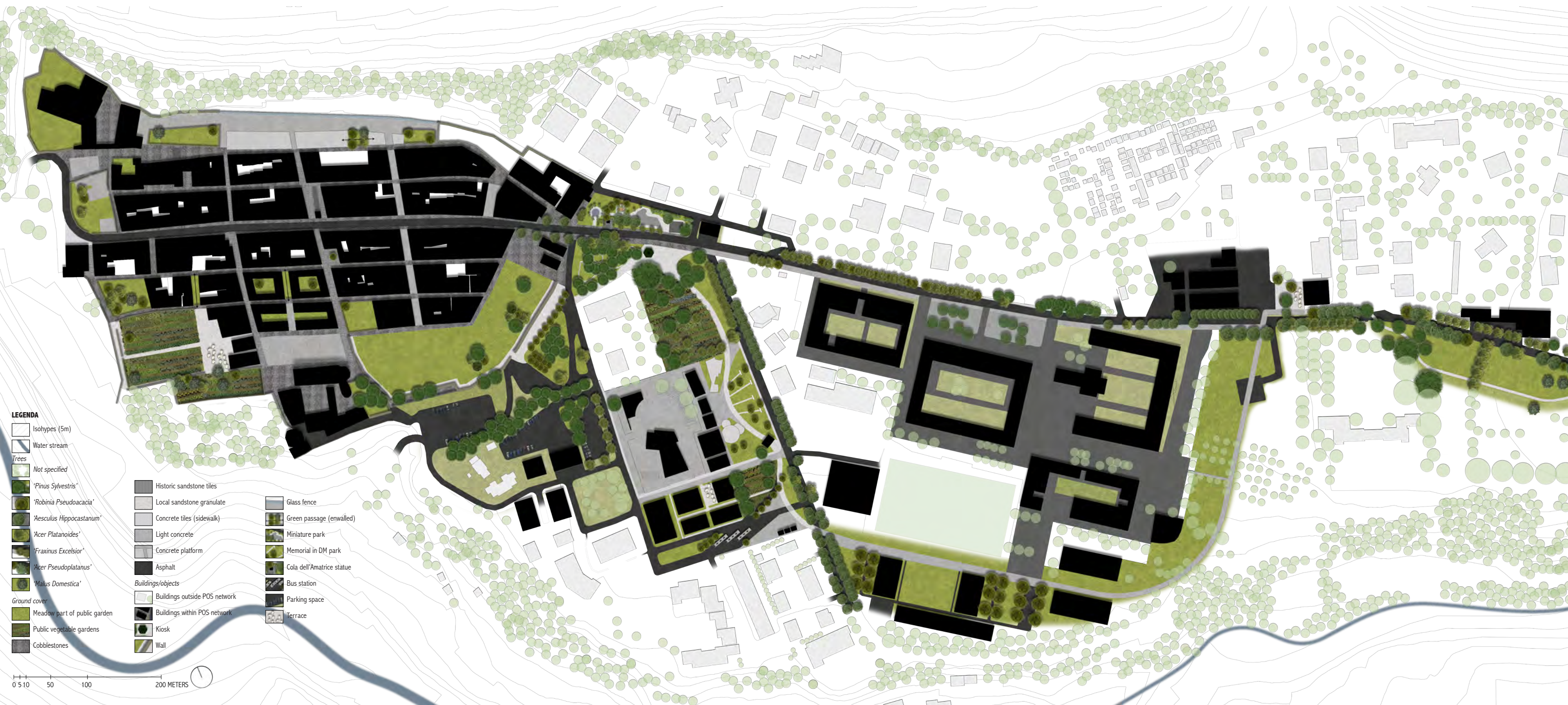
Abstract

On August 24th 2016 a powerful earthquake struck Central Italy by surprise during the middle of the night at 03:36 a.m., causing around 300 victims and devastating entire towns in the regions Marche, Umbria, Abruzzo and Lazio. The municipality of Amatrice, containing one of Italy's most beautiful towns, has become the symbol of the earthquake. Here, the earthquake had the biggest impact by taking the life of 234 people and devastating most of its towns. Today, more than three years after the earthquake, the area still resembles a war zone. The current focus is on rebuilding what was there: a process that will take a long time and makes that the current temporary state risks of becoming permanent. An integrated spatial strategy for the future of Amatrice is not envisioned.

In literature a hands-on framework with general design principles that could give input to the recovery process in post-quake landscapes is missing. This framework should be based on a transition from fast emergency interventions in the initial response phase to more complex and time-consuming interventions, which prepare for the possible next hazard, in the later phases of reduction and readiness. The objective of this thesis is to inform and direct the recovery process of the post-quake landscape of Amatrice and by this to develop a 'Disaster Landscape Recovery' (DLR) framework that could give input to the recovery process of similar post-quake landscapes.

The proposed design has shown that a municipal disaster recovery strategy is a pre-condition in order to improve quality at the local scale of the town. The presented 'Disaster Landscape Recovery' framework includes design principles that could give input to the recovery process in the post-quake landscape of the case study of Amatrice.





Pamela Andrea Acuña Kuchenbecker
 Name supervisors: Sanda Lenzholzer

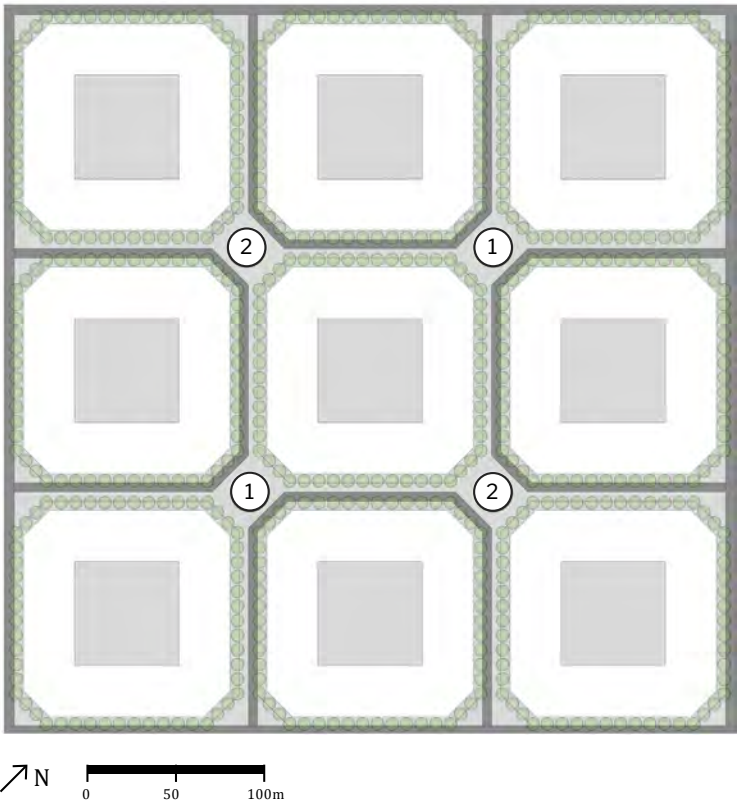
Humanizing streets.

The Superblock in the Eixample, Barcelona, Spain.

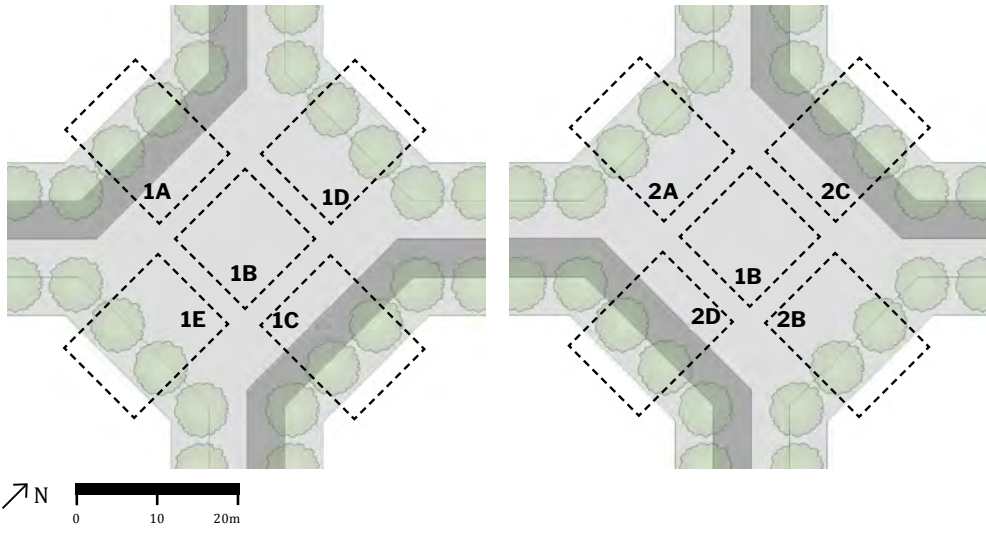
Abstract

People's behavior is affected by the combination of sight, sounds, smells, textures, tastes, and thermal conditions, which can determine how long a place will be used. The built environment, due to its population growth over the centuries and with its consequent reduction of green urban areas, has deprived citizens of many pleasures and introduced new unpleasant sensations. The urban space should diminish these discomforts and affect the human experience positively. Therefore environmental comfort is essential for the design of urban areas. Furthermore, superblocks, with their priority towards pedestrians and its reduction in air and noise pollution, aim to improve the human experience in the urban environment. The intersections of superblocks bring new functions and uses for citizens. Yet, the design of the intersections of the pilot urban superblock of El Poblenou, Barcelona, has little consideration for microclimatic factors. This situation is more concerning considering that, with the increase in temperature due to climate change, the heat-related issues will increase.

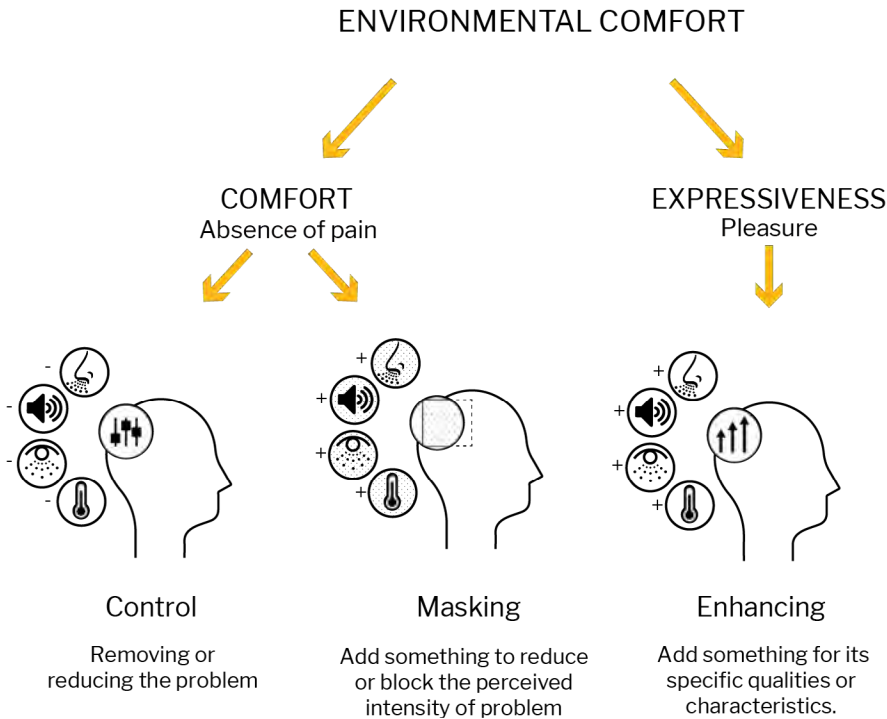
Therefore, the purpose of this thesis is to generate knowledge for the intersections of superblocks, which present a deficiency in providing citizens with a comfortable and positive sensory experience. This thesis fills the knowledge gap by inferring a new multi-sensory approach, which aims towards a pleasurable human experience. First, with the use of techniques and an evaluation matrix, I determined which tools are more efficient for achieving environmental comfort. Then, I generate new knowledge by establishing spatial configurations with different sensory issues. Finally, I determine the integrated strategies for the different types of space of each intersection to produce the final design guidelines. And, with this new approach, unpleasant stimuli can be diminished while pleasant stimuli can be enhanced. These guidelines can be applied in intersections of future urban Superblocks all over the Eixample, Barcelona, to improve the multi-sensory experience.



A superblock consists of nine chamfered blocks, each with a dimension of 113.3 by 113.3 meters (Rueda, 2016). The street orientation is NW-SE and SW-NE (Curreli & Coch, 2010) and has a width of 20 meters (UN-Habitat, 2015). A superblock is composed of streets and nodes. There are two types of neighbor nodes, one with the inner roads on the east and west sides, known as neighbor node 1; and another with the inner roads on the north and south sides, known as neighbor node 2. Each node have 5 sub-spaces. The sub-space 1B repeats in both nodes.



There are two types of neighbor nodes, one with the inner roads on the east and west sides, known as neighbor node 1; and another with the inner roads on the north and south sides, known as neighbor node 2. Each node have 5 sub-spaces. The sub-space 1B repeats in both nodes.



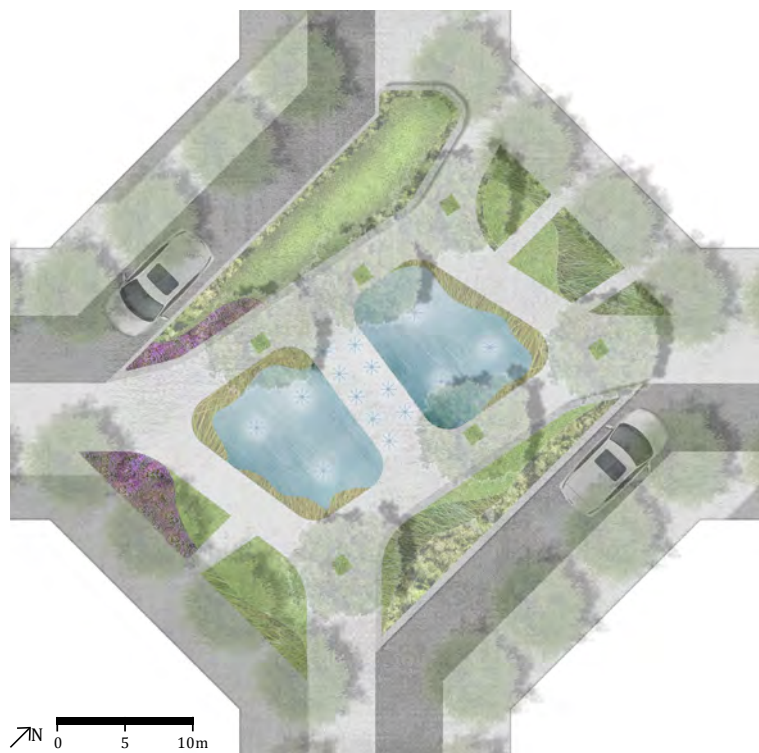
Environmental comfort is the experience between the body and the built space. There are two values for environmental comfort: comfort and expresiveness. Within these values of environmental comfort, there are three techniques: Control, masking and enhancing.



The site design is located in the south-west Eixample area between the streets Carrer Roger de Lluria and Bailsen; and between Gran via de Les Cort Catalanes, Ronda de San Pere and Carrer d' Ali Bei. This site is one of the potential superblocks chosen by the Municipality of Barcelona, which is in the area with some of the highest temperatures during heatwaves (Àrea d'Ecologia Urbana, 2018).

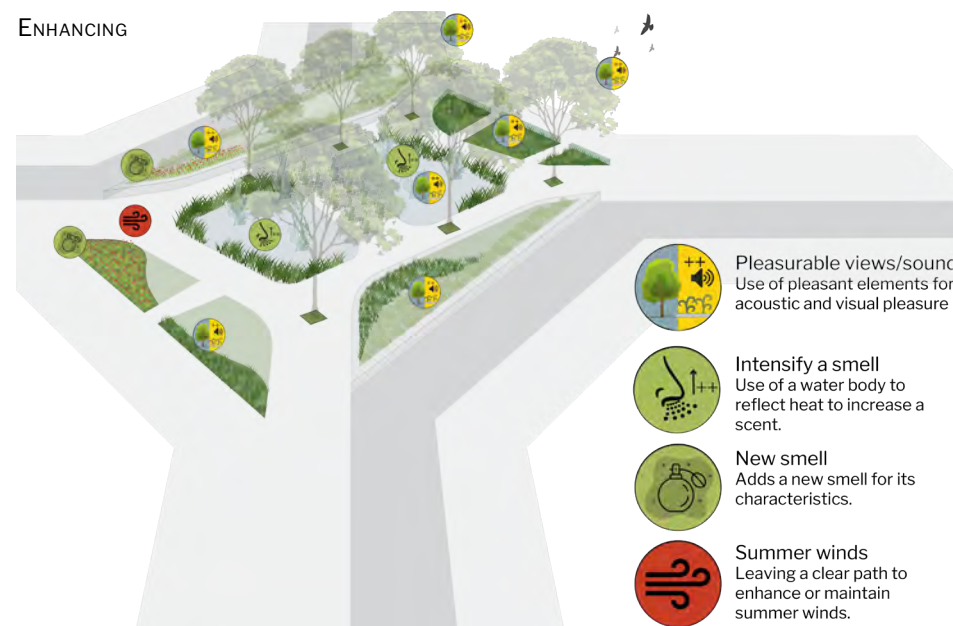
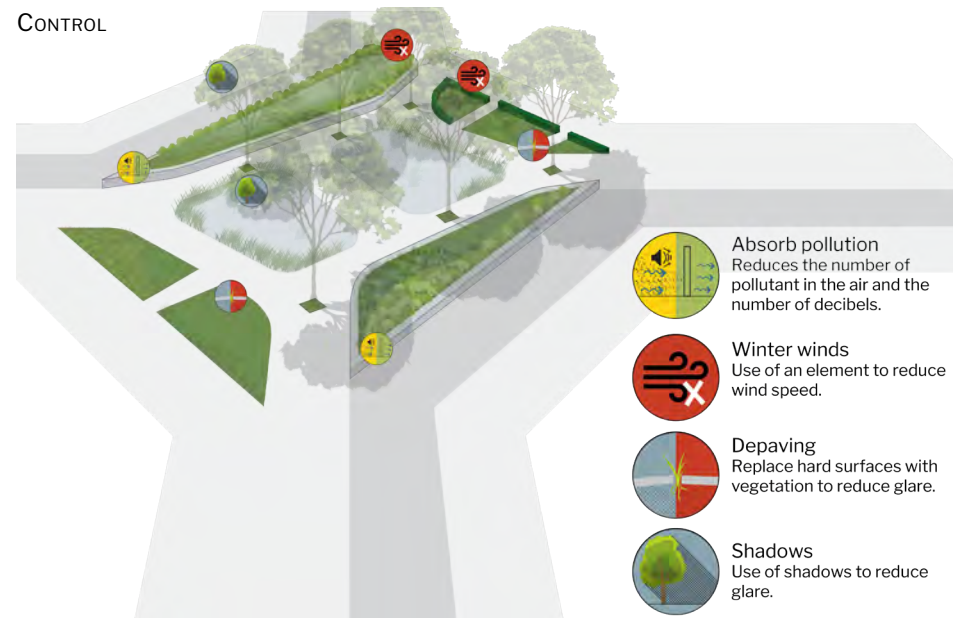
TYPE OF SPACE	1A. Inner road + pedestrian area + shadows	1B. Pedestrian area + little shadows	1C. Inner road + pedestrian area + little shadow	1D. Pedestrian area + no shadow	1E. Pedestrian area + some shadow
SENSORY ISSUES VISUAL	- Unpleasant views (motorized vehicles)	- Glare discomfort during the hours of 12:00 and 15:00	- Unpleasant views (motorized vehicles) - Glare discomfort during the hours of 12:00 and 17:00	- Glare discomfort during the hours of 12:00 and 18:00	- Glare discomfort during the hours of 12:00 and 15:00
ACOUSTIC	- Noise pollution (motorized vehicles)		- Noise pollution (motorized vehicles)		
OLFACTORY			- Air pollution (motorized vehicles)		
THERMAL	- Winter winds	- High temperature during the hours of 12:00 and 15:00	- High temperature during the hours of 12:00 and 17:00	- High temperature during the hours of 12:00 and 18:00 - Winter winds	- High temperature during the hours of 12:00 and 15:00

The spaces with the inner roads (1A & 1C) have more issues than pedestrian areas. Inner roads areas present problems related to visual, acoustic, olfactory, and thermal comfort, while the pedestrian spaces (1B, 1D & 1E) have issues related to visual and thermal comfort.



- LEGEND**
- AROMATIC PLANT (LAVENDER)
 - SHRUBS (BUXUS SEMPERVIRENS)
 - TALL GRASSES (MISCANTHUS SINESIS "GRACILLIMUS")
 - GRASSES (STENOTAPHRUM SECUNDATUM)
 - WATER GRASSES (DACTYLIS GLOMERATA)
 - WATER ELEMENT
 - LARGE TREE (BROSSONETIA PAPIRIFERA)
 - PERIMETRIC TREE (EXISTING TREES: VARIOUS SPECIES)

The design of NN1 contemplates having solid elements next to the inner roads to reduce discomfort from the motorized vehicles. Meanwhile using more porous elements on the north and south side allows a connection with restaurants, and shops. Additionally, curves have been used in different elements for fluidity and as a reference towards the sea. Furthermore, to improve the environmental comfort, three techniques have been used on site. Each technique has their own strategies.

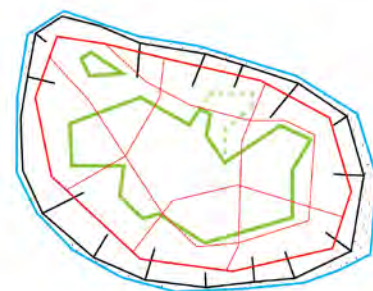




Mountain outline Island outline Natural coast

Aquaculture reclamation Rock excavation Natural coast

Urban reclamation Artery road ring Urban road grid

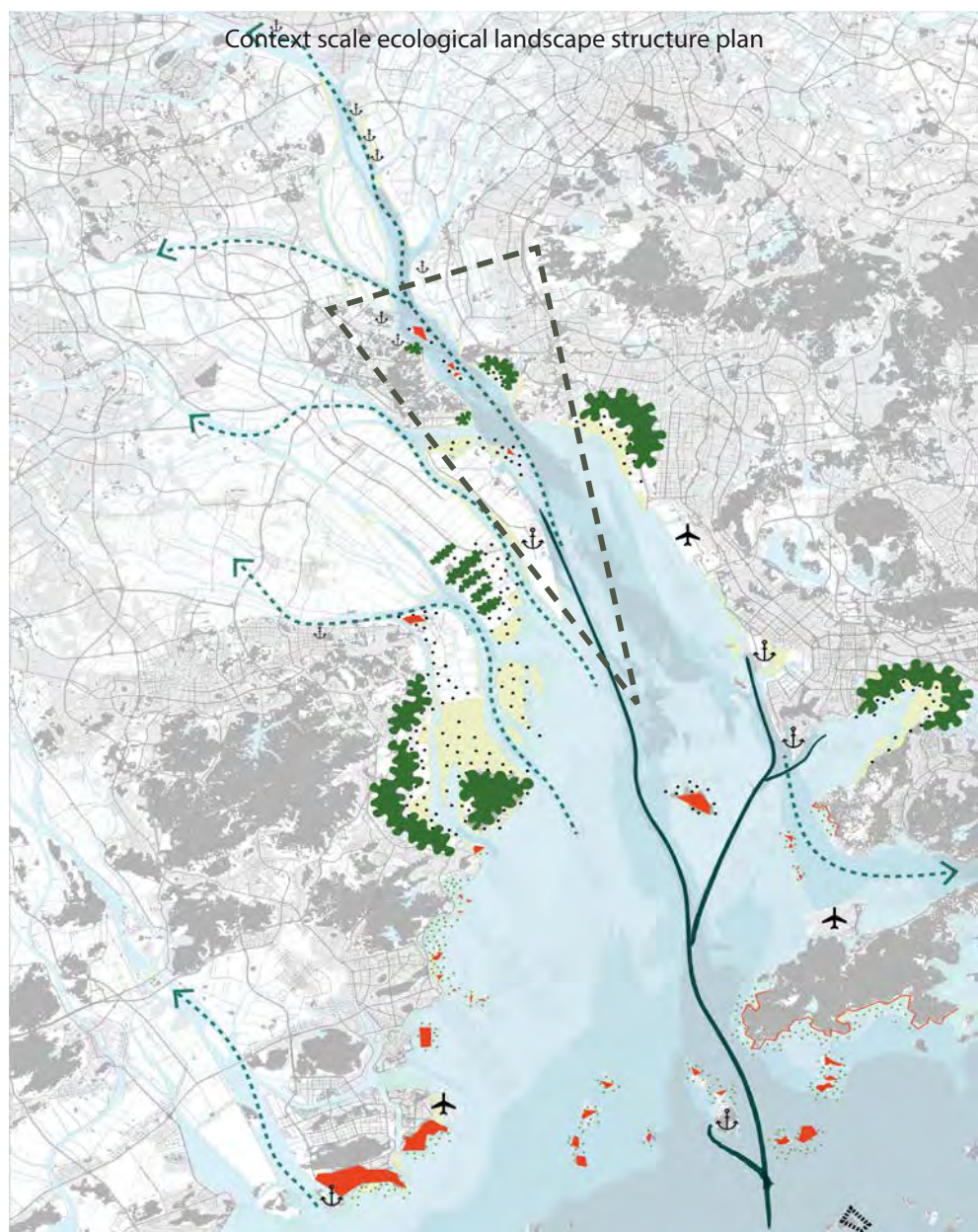


BEFORE MASSIVE LAND RECLAMATION

AQUACULTURE DEVELOPED

URBAN/INDUSTRY DEVELOPED

Regional scale system understanding



Xinchang Tong
Adriaan Geuze

ROOM FOR THE ESTUARY

An alternative regional landscape design for east pearl river estuary, Chin

Abstract

The rapid and intensive estuarine-coastal development has caused severe ecological environment problems in China. Chinese society calls for 'holistic approach' in regional planning and design for addressing this issue. However, the current planning system is still urban-focused and economy-driven. Local authorities make dissociated plans and compete for shared natural resources. It is an urgent issue to enhance ecological value on the upper scale level of regional planning for Chinese estuarine-coastal regions.

The project takes the East Pearl River Estuary as the study case. Due to previous aggressive development, the ecological landscape at the upper half of the region has lost. The most recent giant seaport project Nansha New Port is without any spatial environment compensation plan; and each of the other coastal areas in the region has a plan for itself. These situations constitute the problem that the estuary region as a whole landscape unit has been overlooked.

This design research tried to improve this situation. It is an attempt to make system regional landscape planning for the East Pearl River Estuary and to provide an alternative landscape design for the Nansha New Port related area, the Hu-Men Outlet area. It aims to reduce the environmental impact of the Nansha New Port and make environmental compensation for it.

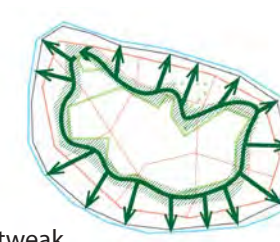
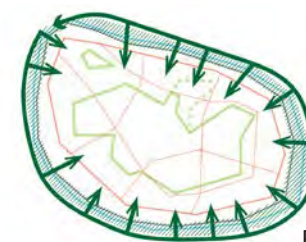
The final products propose a regional ecological landscape structure and landscape casco for different land use development areas. The designing process also provides insights for improving regional landscape planning and design under the Chinese context.



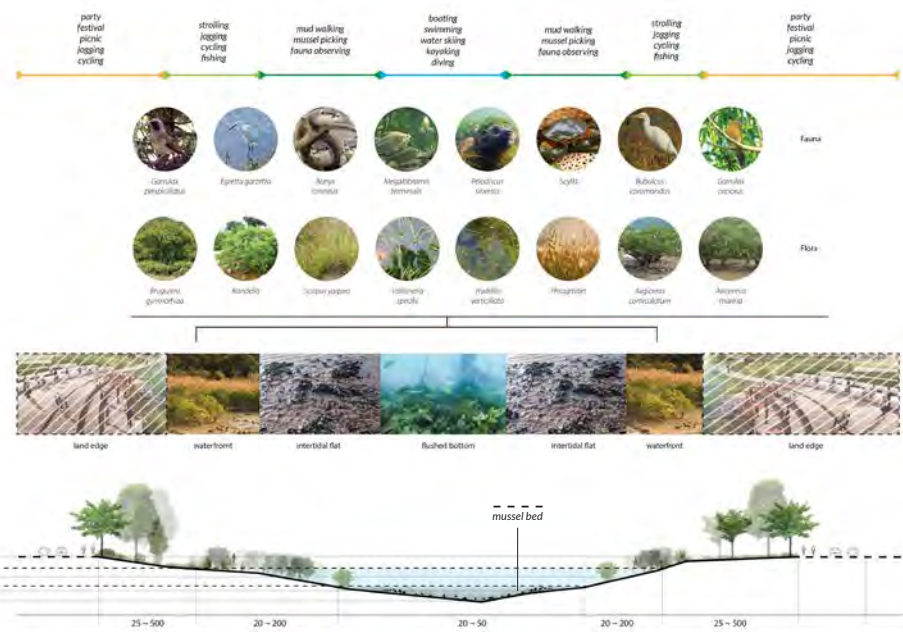
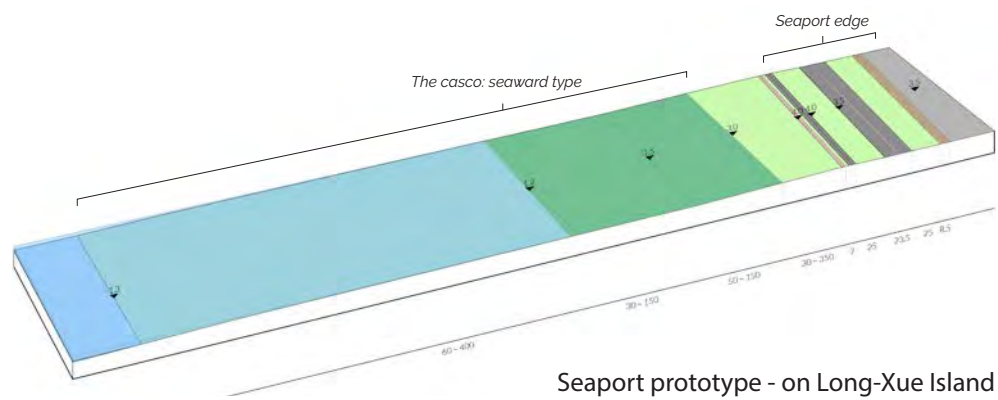
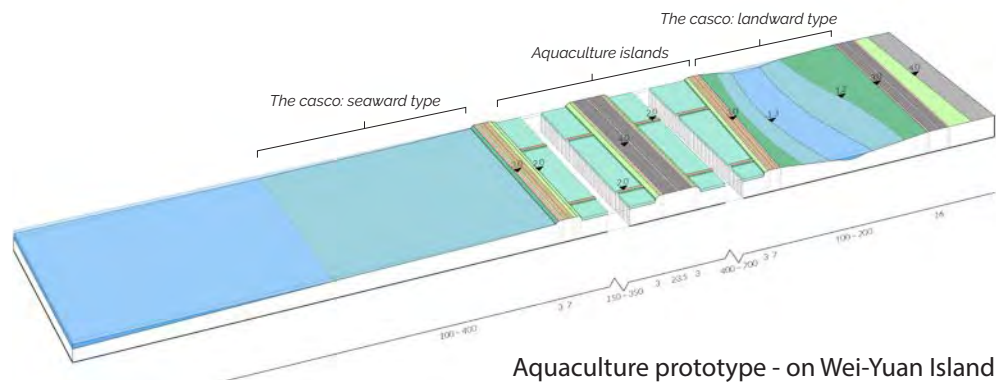
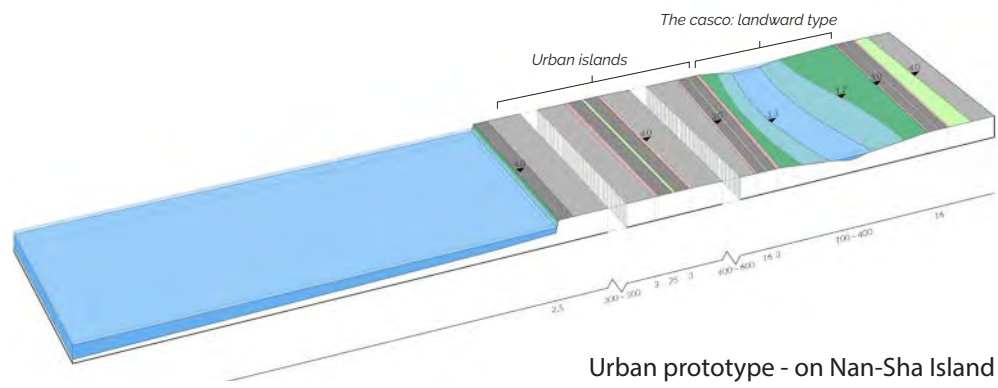
REOPEN + CONNECT SEAWARD



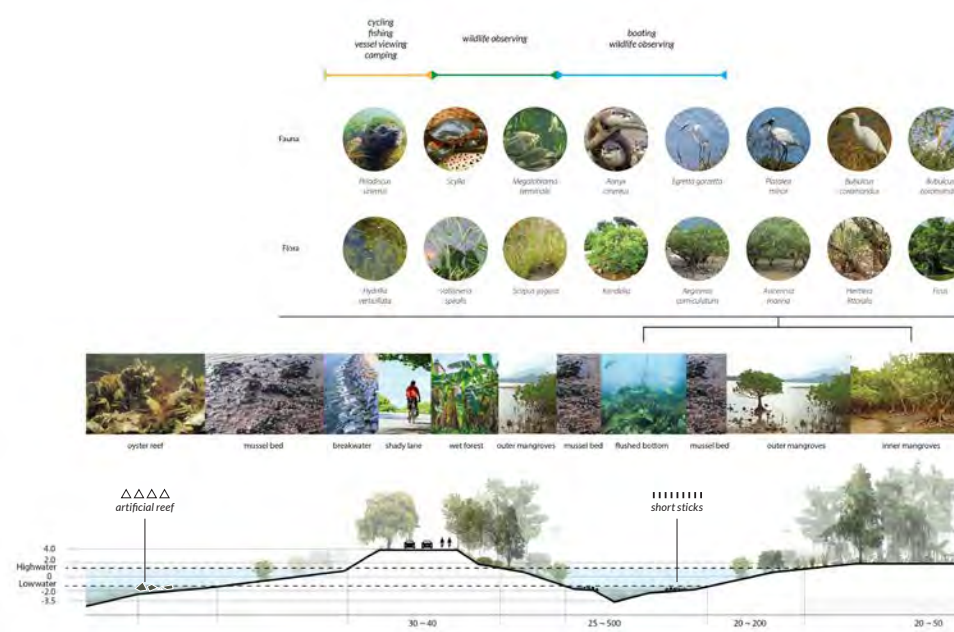
REOPEN + CONNECT LANDWARD



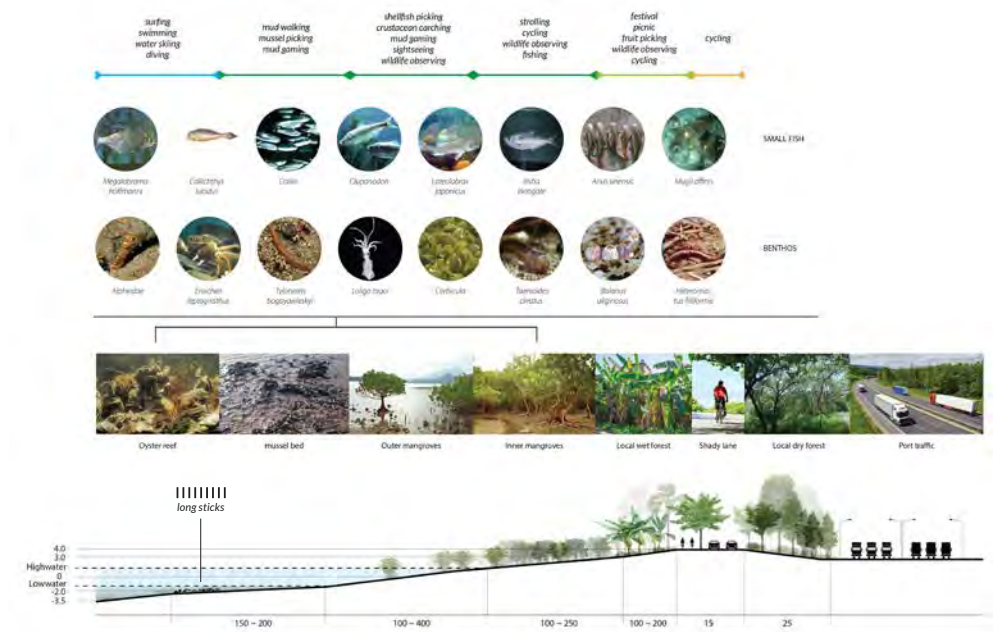
Regional scale system tweak



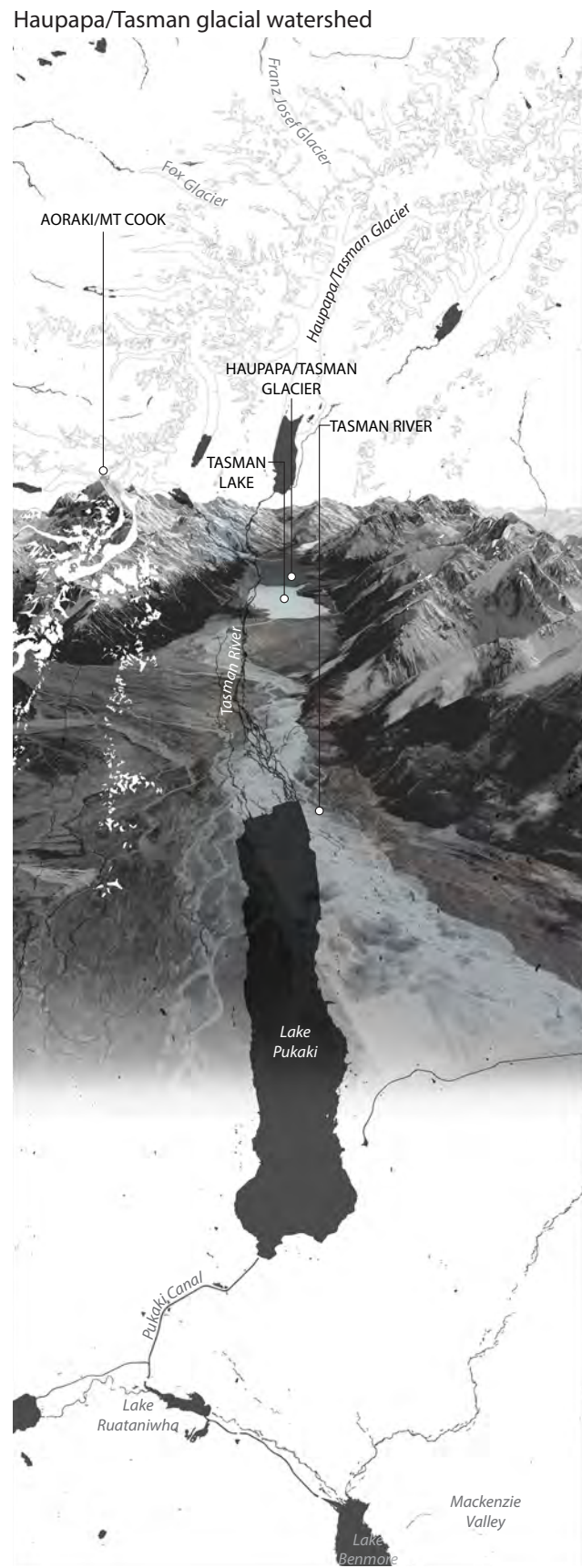
Landscape prototype: the landward type



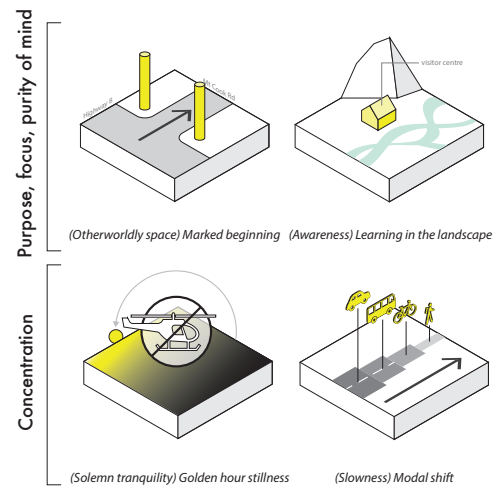
Landscape prototype: the seaward type A



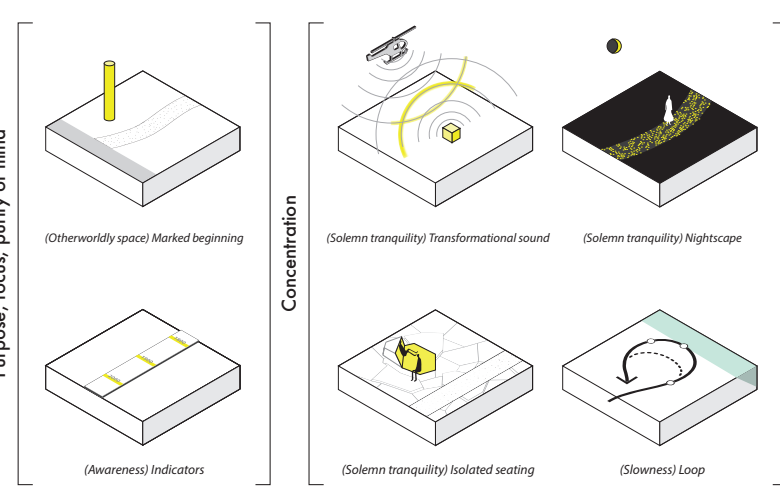
Landscape prototype: the seaward type B



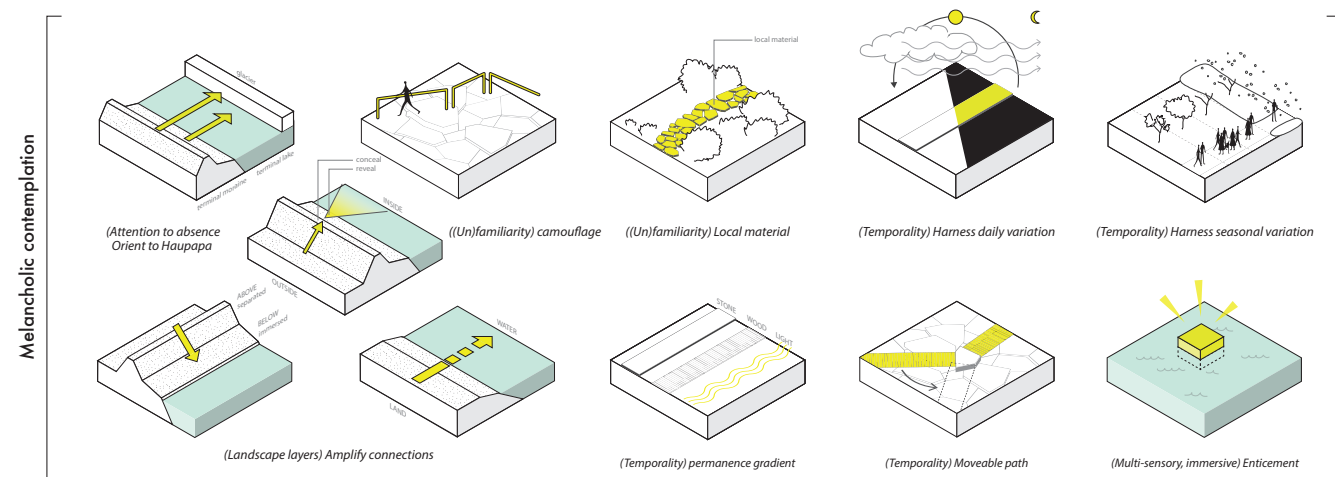
Design guidelines: National Park & context



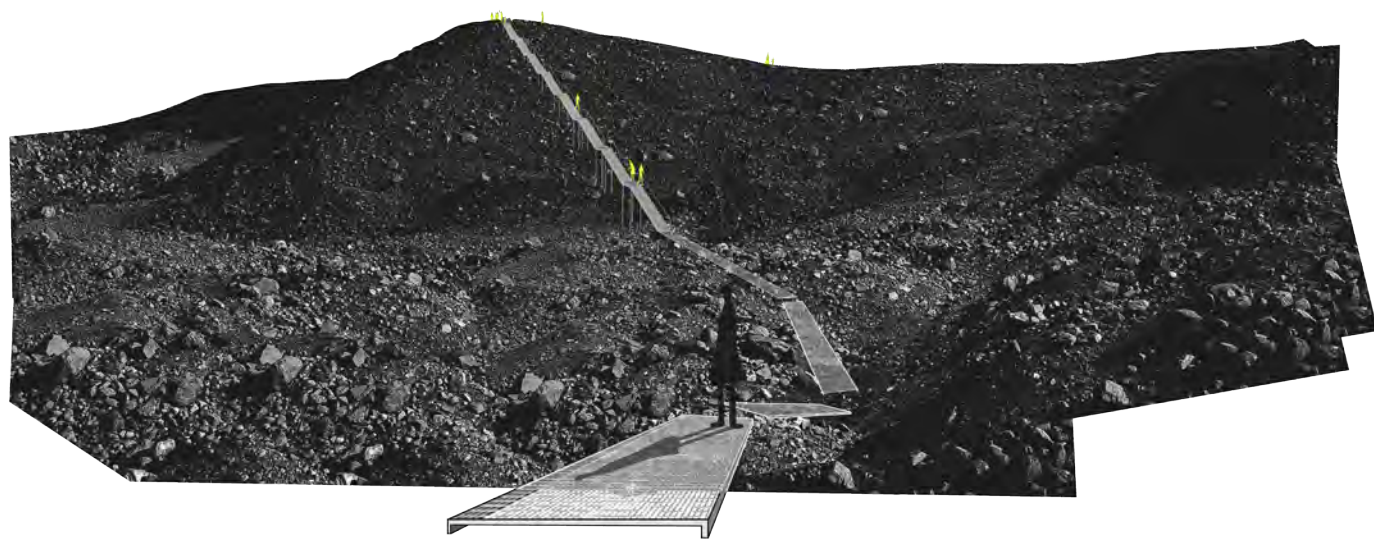
Haupapa/Tasman Glacier project site



Haupapa/Tasman Glacier project site cont'd



Site design: "Vanity Stair"



Alexandra R. van Zyl

Supervisor: ir. R (Rudi) van Etteger MA

Tribute to a glacier

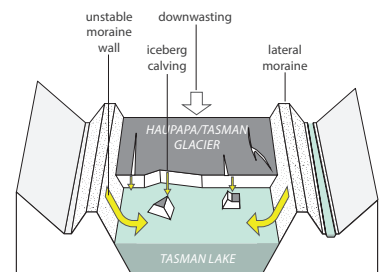
Designing a landscape for melancholic contemplation

Abstract

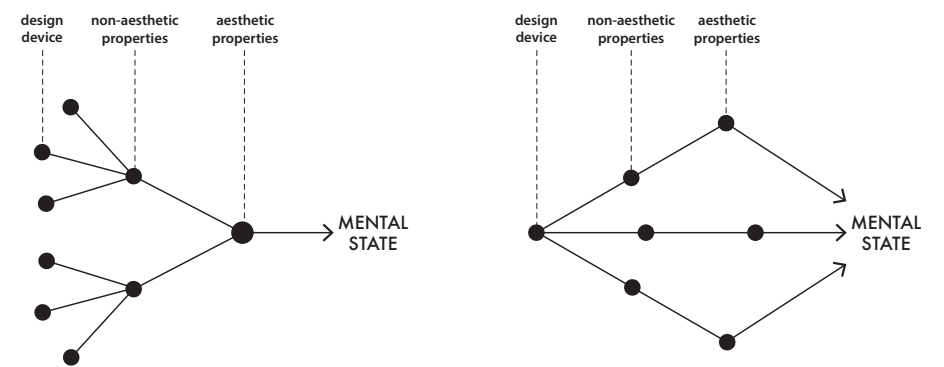
Although glacier retreat is a well-recognized consequence of climate change, with a range of implications for dependent communities, there is surprisingly little engagement with the issue. A theory in psychology, supported by the findings of this research, explain environmental melancholia to be at the root of this inaction. With this as a foundation, this thesis demonstrates that landscape architecture, a field that is, until now, uninvolved in retreating glacial landscapes, has the capacity to address the psychological experience of glacier retreat in order to foster engagement with environmental degradation. Haupapa/Tasman Glacier, the longest glacier in Aotearoa/New Zealand, serves as a case study for the inquiry and subsequent design. The study draws from personal encounters, literature, and projective sketching to develop a novel approach to an aesthetic framework that guides a spatial design to induce a state of melancholic contemplation. The research explores why this state is important in modern society and the design propounds how aesthetic experience can be performative by fostering this psychological state. This thesis opens up new avenues for the much-needed field of design that deals with degrading landscapes. It also hopes to help and encourage other designers to create these spaces and secure a place for aesthetics, melancholia, and contemplation in contemporary landscape architecture.

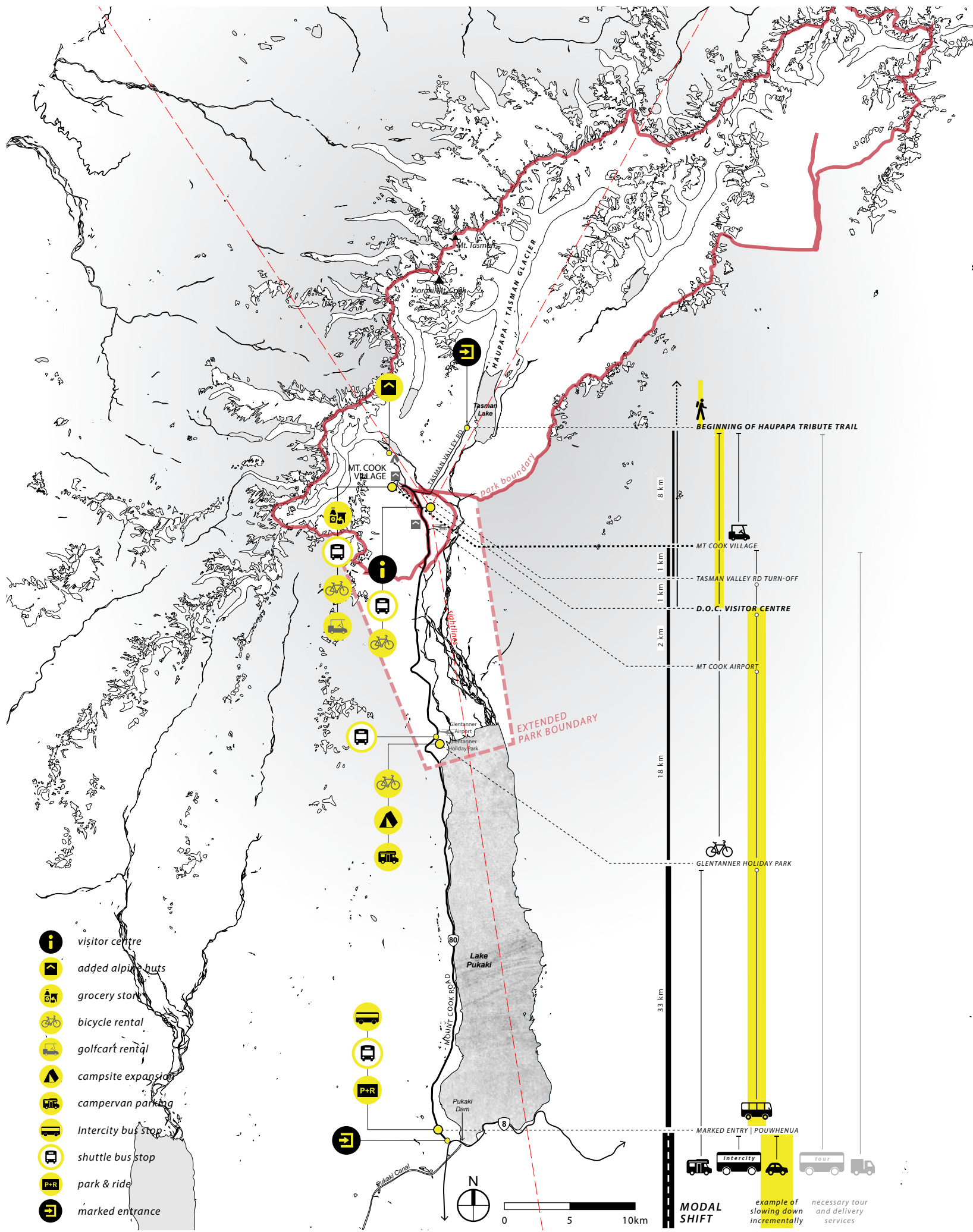
Key words

Glaciers, glacier retreat, climate change, engagement, environmental melancholia, melancholy, contemplation, aesthetics, landscape architecture.

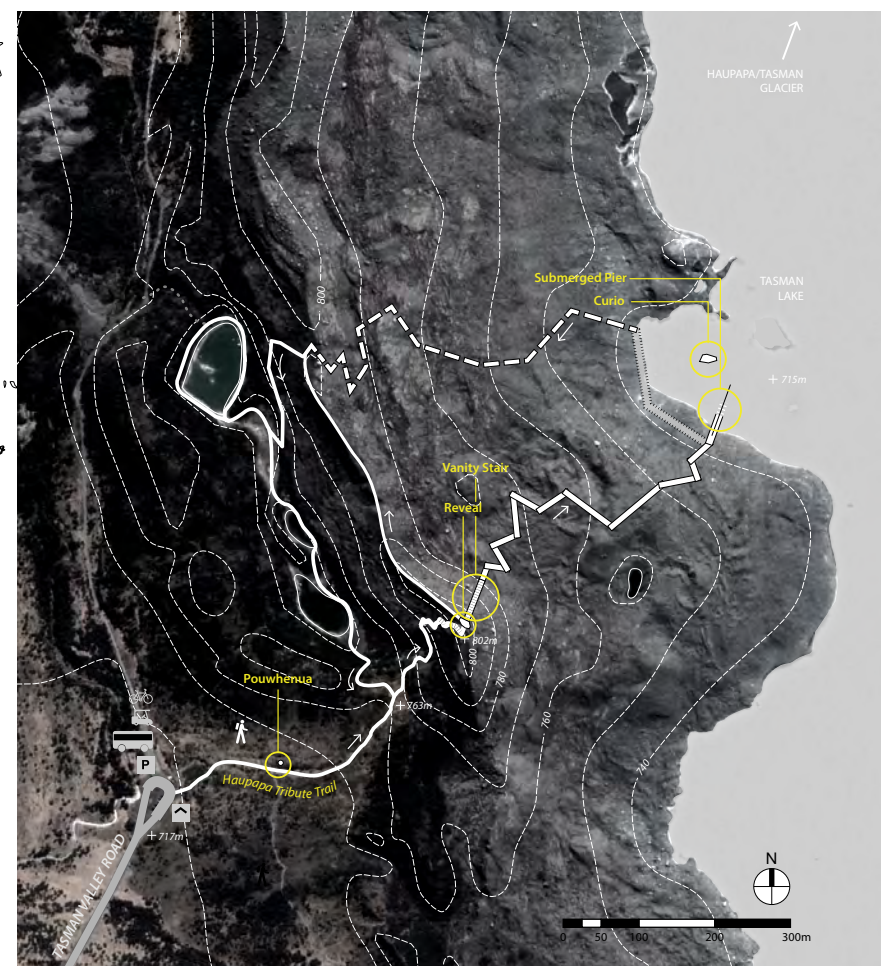


Otherworldly space	Awareness	Solemn tranquility	Slowness	Attention to absense	Landscape layers	(Un)familiarity	Temporality	Multi-sensory, immersive
THRESHOLD careful siting; transitions; entrances; sequences; passages	INFORMATION text	SILENCE 'moments of silence'; acoustic silence	PILGRIMAGE prescribed route; walking path	VOID physical voids; empty seats	ORIENTATION moments of reveal; dampening and heightening	ARCHETYPAL ELEMENTS path; clearing; single old tree; still water (water mirror); waterfall; circle; grave; boulder	LIMINALITY islands; twilight; liminal seasons; thresholds; passages	MODULATED MOVEMENT access routes (get people into the landscape, rather than just looking at it)
RITUAL access restrictions; invitation; authority; enclosure, sanctified	COLLECTIVE NARRATIVES cultural references; memory recollection cues	SOLITUDE single bench SIMPLIFIED STIMULI resculpt existing elements; rock gardens; aesthetic constraint	MODULATED MOVEMENT seating; moments of pause; intervals	ORIENTATION altered perspectives	MODULATED MOVEMENT pathways thatt appear and disappear	THE UNCANNY repetition; mirroring; doubling	FRAGMENTS, LEAVINGS ruins; stranded objects; souvenirs	SENSATION touch; smell; sight; sound
	SYMBOLS water; sun; moon	MONOCHROME muted colours; limited palettes; carefully chosen vegetation		COSMIC LINKS sky; sun; moon		AURA craft & specificity in material; collective narratives	WEATHERING AND PATINA petrified residues; collections	
		DARKNESS subdued scene; twilight				CAMOUFLAGE disruptive patterns	TRANSCIENCE linear time; cyclical time; seasonality; shadows	

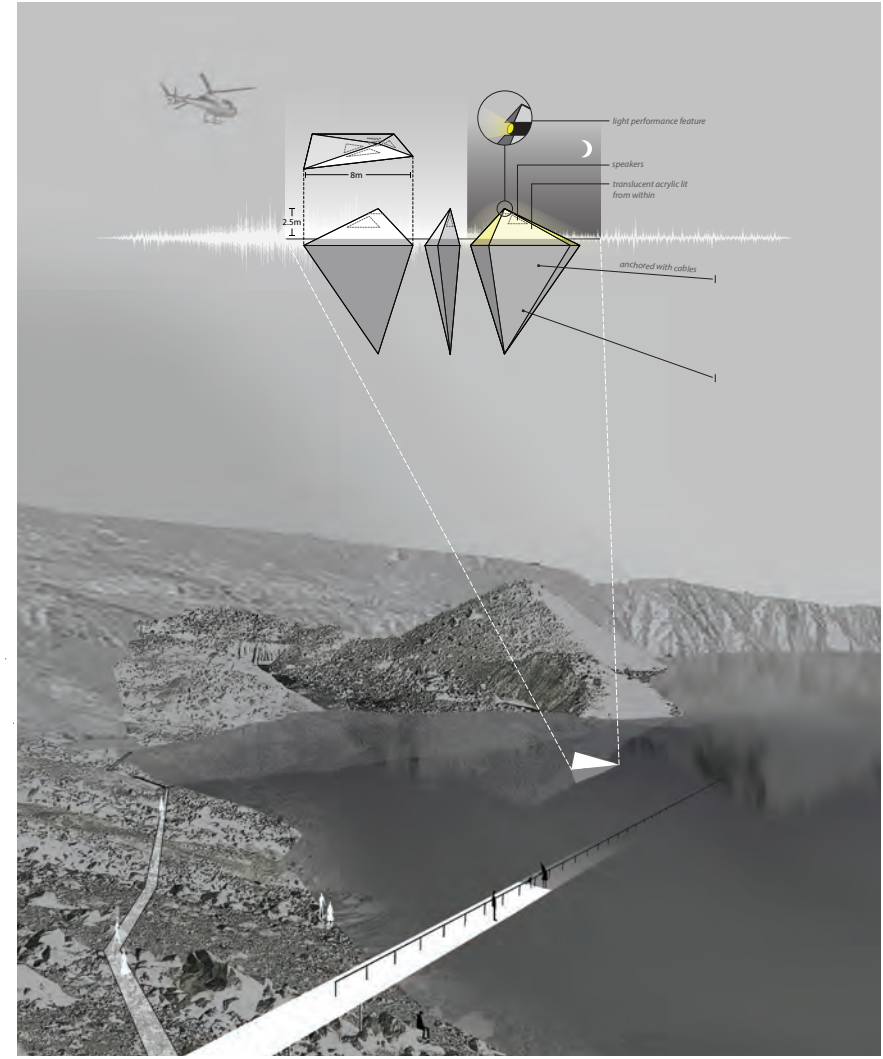




Design strategy for Aoraki/Mt. Cook National Park & context: A curated journey



Site design plan: Haupapa Tribute Trail



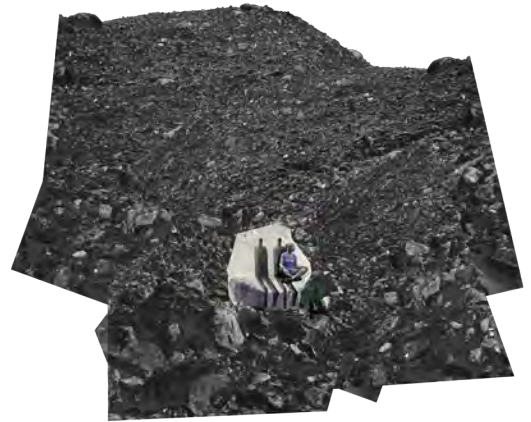
"Submerged Pier" and sculptural element "Curio"



"Reveal"

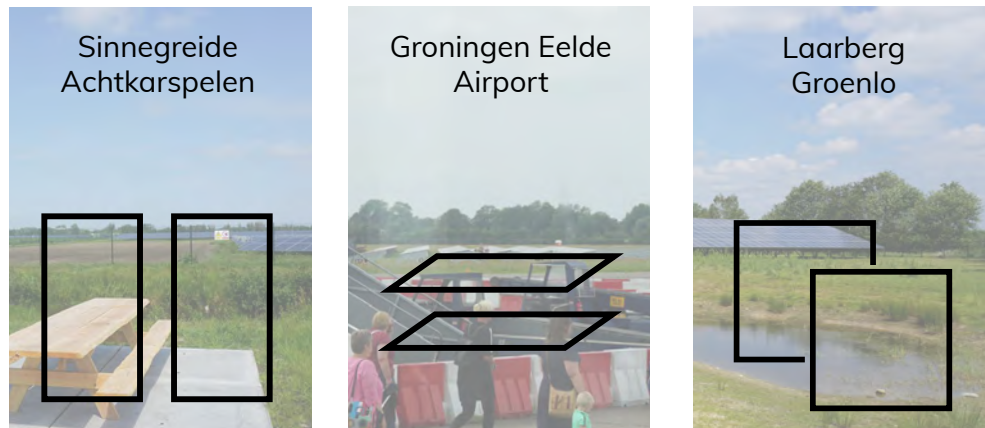


Mirrored "Vanity Stair"



"Seated silhouettes"

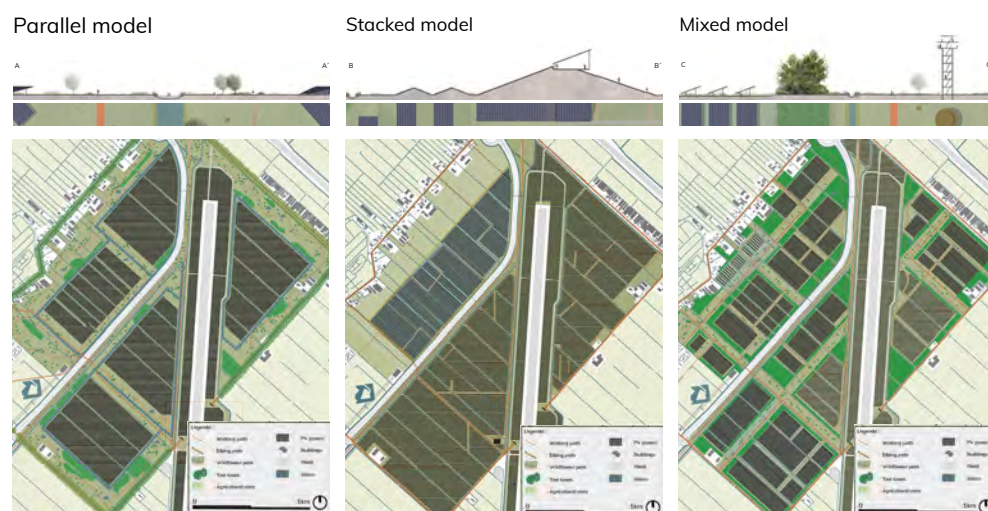
Reference study



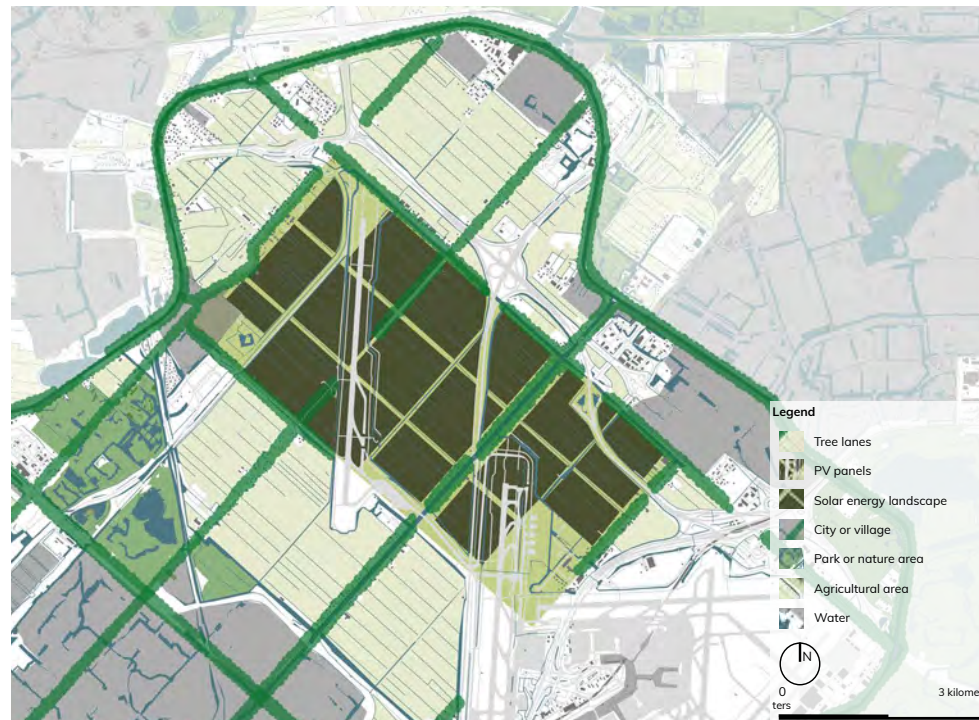
Examples of design guidelines

Category	What	Purpose	Where
Biodiversity	Wildflower meadows / wild grasslands	Habitat and foraging insects for insects.	Underneath and between PV panels
Water retention	Permeable water retention	Water retention and infiltration	Under and between patches
Recreation	Fruit trees	Opportunity to pick fruits	Between patches or entrance
Airport	Artificial hills	Reduce ground noise	Underneath PV panels
PV-energy	Lower PV panels	Decreasing visual impact solar energy park	Close to landscape user
Landscape structures	Improve functioning and appearance of lines	Enhancing readability of landscape	Lines of grid

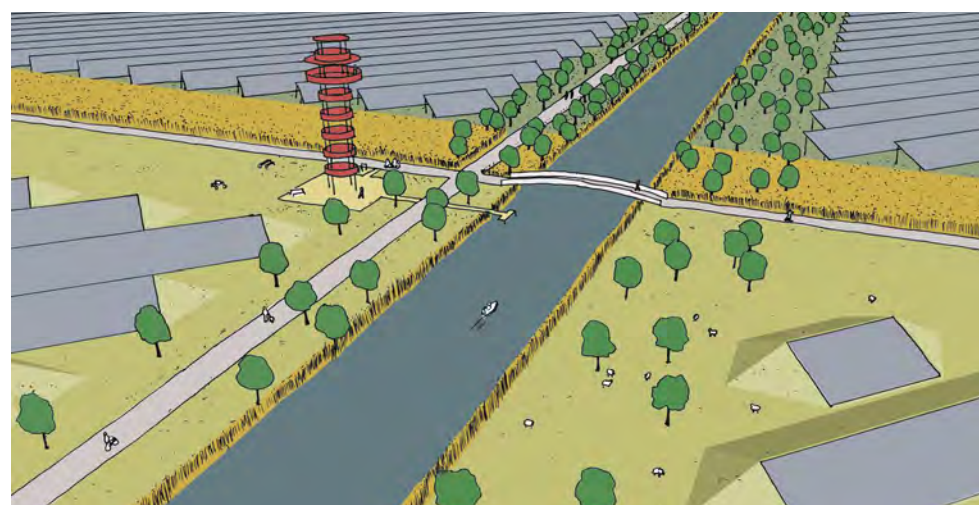
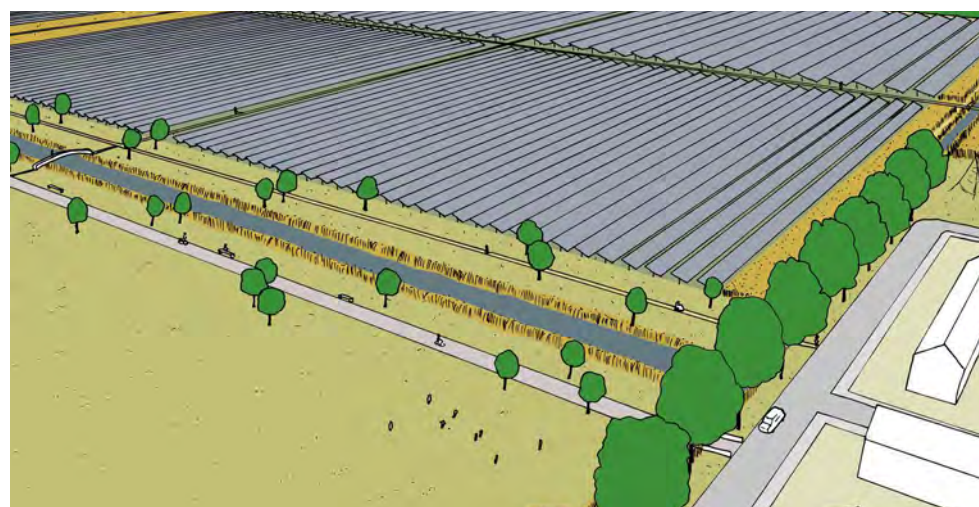
Model study



Regional design



Areas in solar energy landscape



Coos van Ginkel

Sven Stremke

Dirk Oudes

Steven Slabbers (Provinciaal adviseur ruimtelijke kwaliteit provincie Noord-Holland)

The bright side of solar energy

How solar energy can be used as a tool to improve landscapes Northwest Haarlemmermeer, Netherlands

Abstract

In the coming years a transition will take place towards a renewable energy based energy system. In the Netherlands a large part of this renewable energy needs to be produced within the landscape. In the coming years, the impact of renewable energy on the landscape worldwide will be enormous, in a dense country like the Netherlands this impact will be even larger than elsewhere. Landscape experts urge that the energy transition should not harm the existing landscape but rather be used to improve spatial quality by making it a part of integral regional design.

Recently many solar parks have been built, however, knowledge about how to use them to improve spatial quality is still scarce. This research contributes to closing this knowledge gap. In this thesis three existing solar energy parks are being analysed, as well as the Northwest Haarlemmermeer, which is the design location. The outcome of this is translated into the design of three models, which form the foundation for an integral design for a solar energy landscape.

Six categories of functions for multifunctional solar energy landscapes are identified: biodiversity, water retention, airport, recreation, PV-energy and landscape infrastructure. They are translated into both general and site-specific design guidelines on three different scale levels.

Based upon this three ways of organizing these functions are considered and analysed: parallel, stacked and mixed. Organising the functions next to each other (parallel) is considered to have the largest positive impact upon spatial quality on this scale.

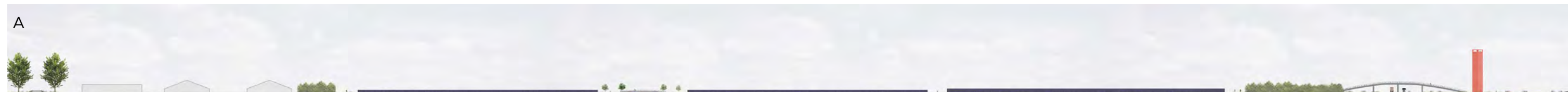
Together, the design guidelines, model study and integral design give a clear picture of how a multifunctional solar landscape can function as a tool to achieve other spatial goals and so improve spatial quality.

Keywords

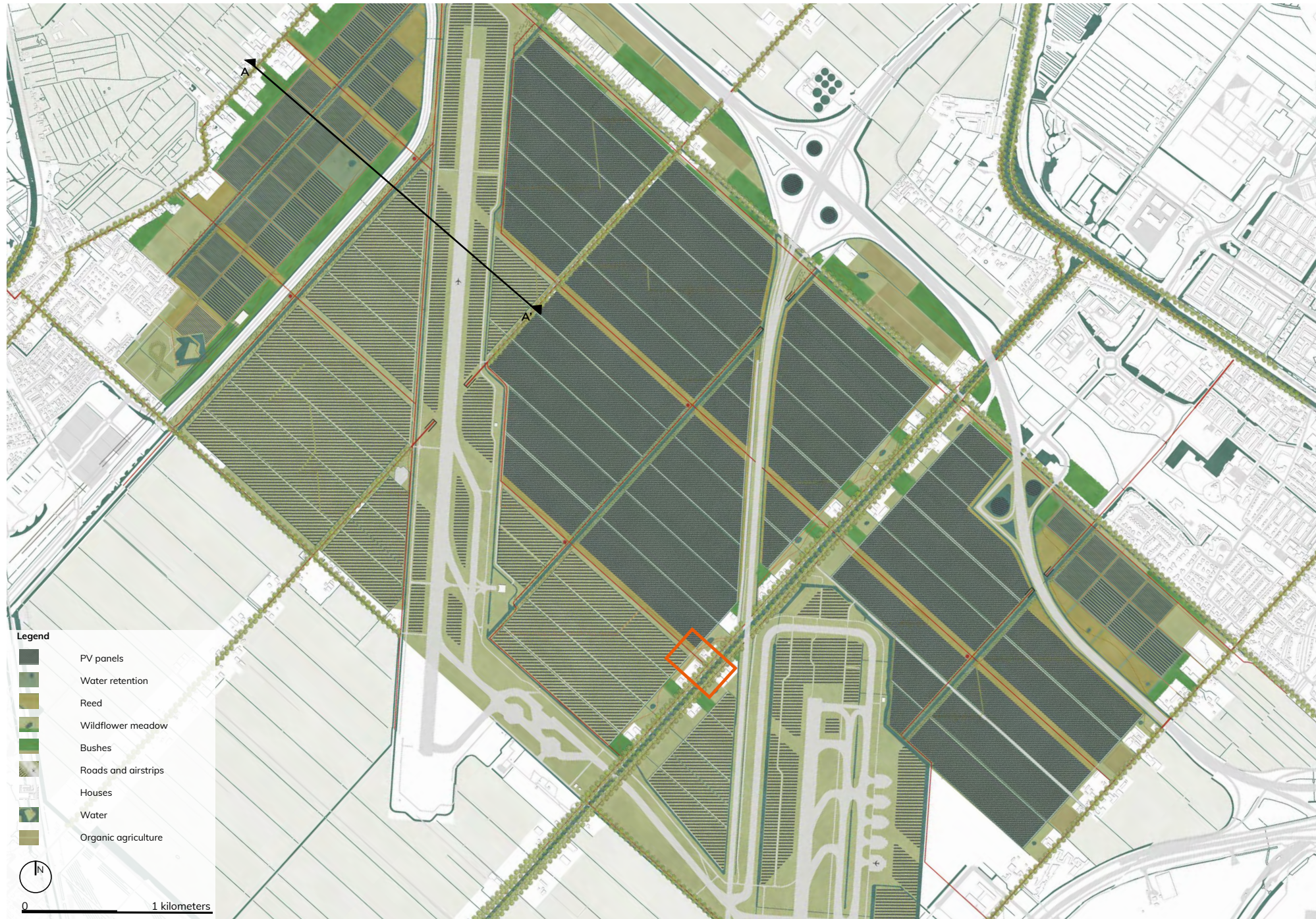
Solar landscape, solar park, solar energy, spatial quality, landscape quality, multifunctionality, energy transition, research through design, parallel, stacked, mixed

SOLAR ENERGY
SPATIAL QUALITY

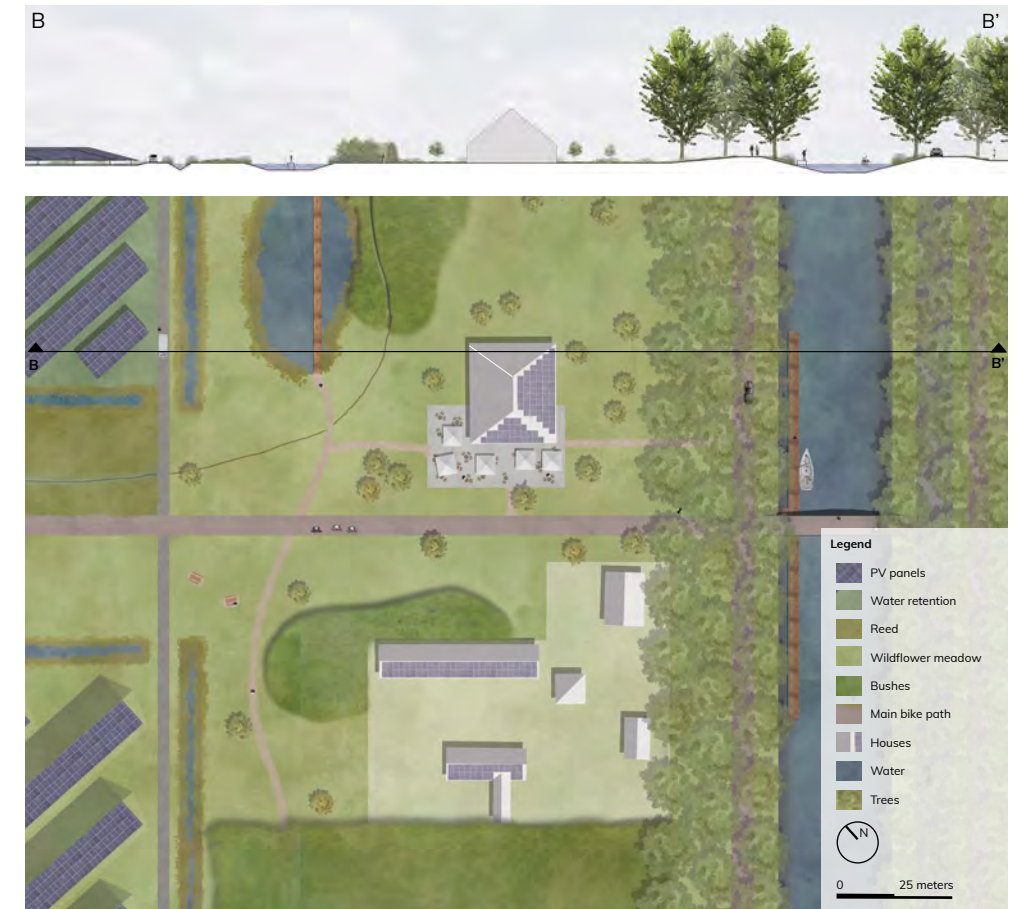
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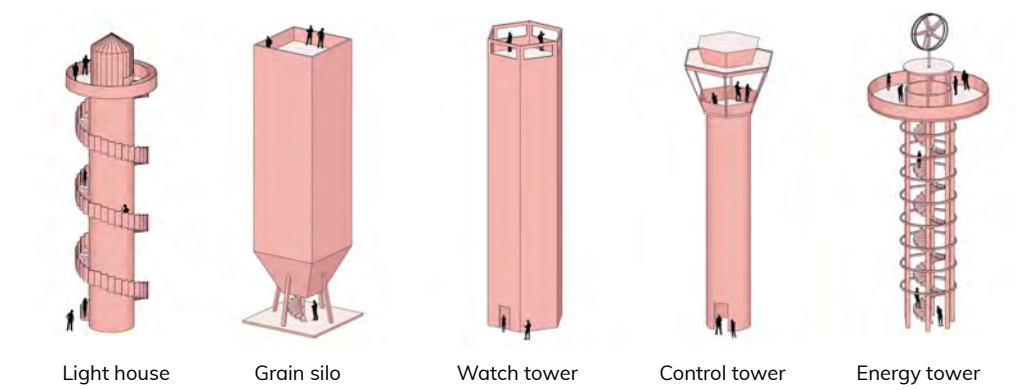
Solar energy landscape

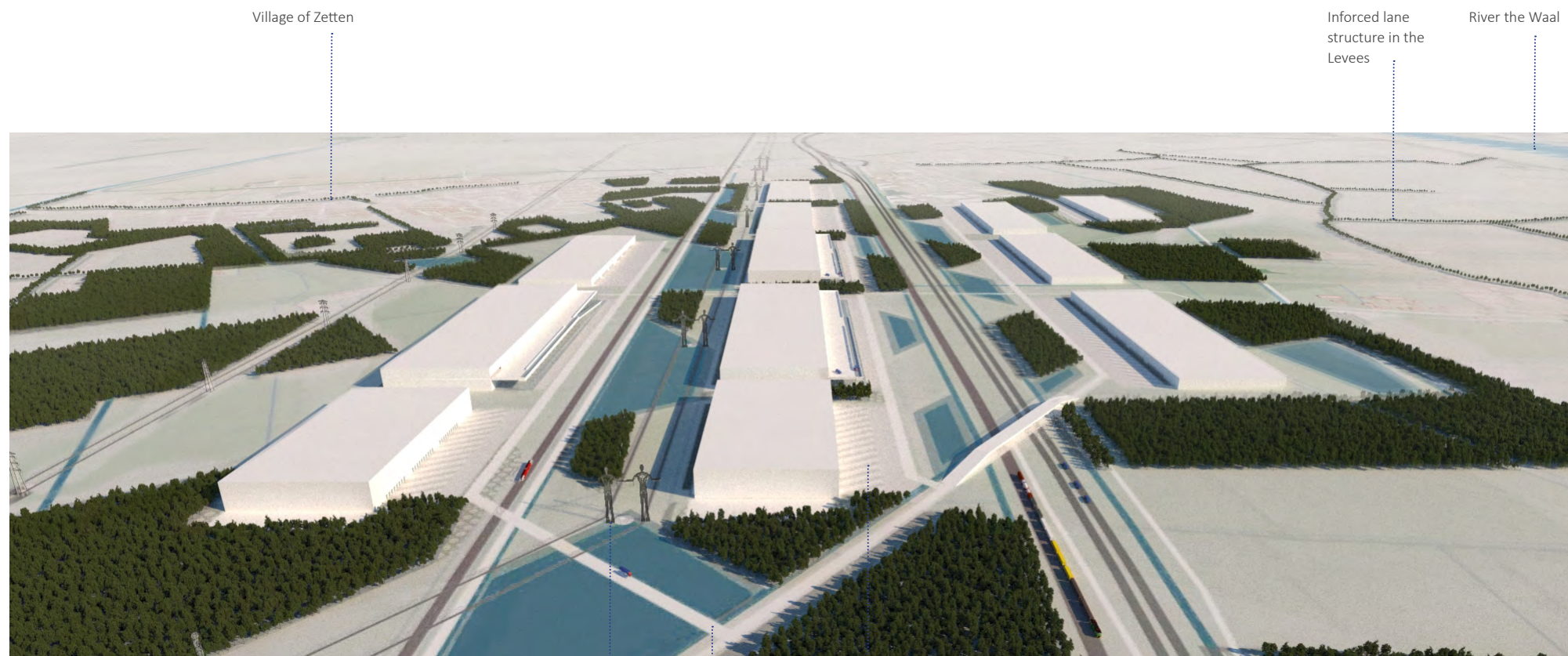


Detailed design



Viewing towers





Village of Zetten

Inforced lane structure in the Levees

River the Waal

Joran Lammers

Name supervisors: Adriaan Geuze, João Cortesão, Maarten van Riet (Alliander)

XXL MIX

An explorative design study into an alternative way of placing and designing XXL warehousing in the Netherlands

Abstract

In this thesis, new guidelines for placement and design of XXL warehouses are developed. To do so, a design hypothesis was explored, referred to as the 'XXL MIX park'. This design hypothesis states that combining the ideas of 1. clustering of XXL warehousing 2. integrating a renewable energy function and 3. meaningful landscape design, can lead to improved integration of XXL warehouses in the landscape of the Netherlands.

To test to what extent the design hypothesis 'XXL MIX park' could lead to new guidelines for placing and designing XXL warehousing, explorative research through design was conducted in three different phases of research. In phase 1, design- and placing- principles were developed to outline the concept of the XXL MIX park. In phase 2, on the base of the placing principles, 24 spatial datasets were combined and analysed to develop a placement strategy for the XXL MIX park. Phase 1 and 2 informed phase 3; a design synthesis. In multiple design iterations, an optimal integration of the design principles of the XXL MIX park was explored in the landscape of Dodewaard. Phase 3 eventually led to a final design.

The final design gives XXL warehousing a genuine place in the landscape of Dodewaard . By 1. following existing, large-scale landscape structures, 2. integrating the large-scale industrial elements in a firm landscape framework, and 3. creating a clear spatial structure for industrial development the design combines an industrial, energy and landscape perspective in an optimal way. Next to a sensible integration in the landscape, XXL MIX park offers an experience that raises questions about our own consumption behavior and the extent to which the landscape can bear the spatial results of a lasting desire for a growing economy.

Lastly, the final products were evaluated, and guidelines for placement and design of XXL warehousing in the Netherlands were proposed.

XXL MIX park Dodewaard 2030 combines 70 hectares of logistic storage capacity, 25 500 MWh of energy storage capacity and 400 hectares of nature development



Poplar/Willow forest
Climate forest

Public railroad
Arnhem-Tiel

Water retention lake

Bicycle 'highway'

380 KV line,
'Lane of Giants'

Truck road

Docking and
parking space

Cargo rail
Betuwe route

Highway A15

Highway exit
for trucks

Highway
A15

150 KV line to Tiel

380 KV line to
Maasbracht

Nederrijn

Path along the Linge
canal. Viewpoint of
visual 3

150 KV line to
Veenendaal

150 KV line to
Ede

50 KV line to
Nunspeet

Riverdike (banddijk
Nederrijn)

Betuweroute

River swirl lake

380 KV high-voltage
station

Membrane stack
BlueBattery storage
system

Bicycle highway

Public railroad
Arnhem-Tiel

Symbolic dike breach
Viewpoint of visual 4

380 KV line with
high-voltage giants

Wust
waterstream

150 KV line to
Nijmegen

150 KV high-voltage
station

New cycling
connection to
Wageningen

Linge canal



In XXL MIX park Dodewaard, all warehouses have their docking and parking space at one side of the building, the other side is directly connected to the surrounding nature.



In XXL MIX park Dodewaard, logistic, energy and landscape functions are optimally combined in the landscape of the Betuwe.



24 spatial datasets were combined to develop a placement strategy for the XXL MIX park



By applying the XXL MIX park on the 10 selected locations of the placement strategy, large-scaled fragmentation and cluttering of the landscape can be avoided.

Sjors de Greeff

Prof. Ir. A. (Adriaan) Geuze

The Drought Resilience Casco

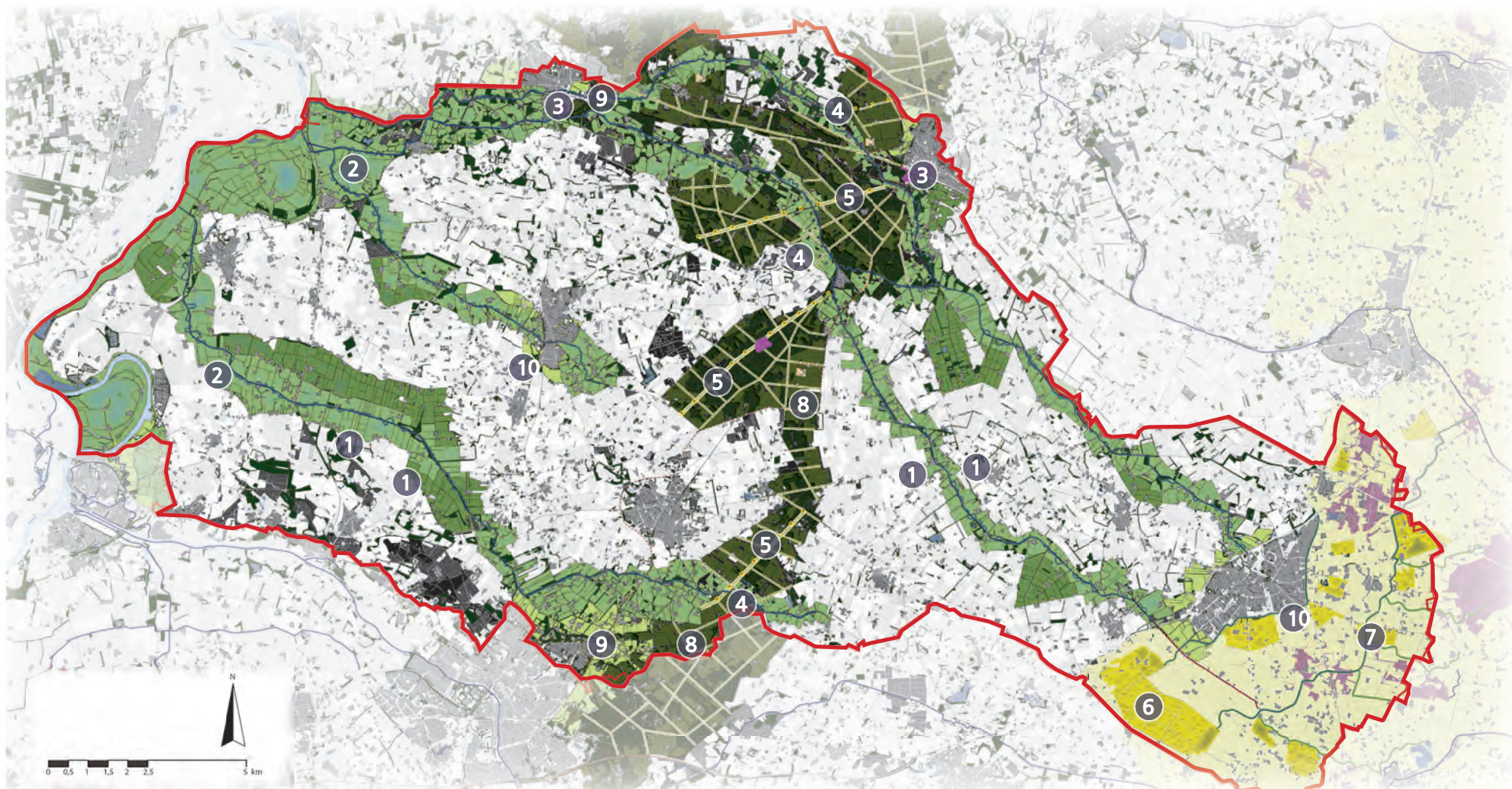
A New Drought Resilience Casco for the High Sand Landscapes: A Case Study of the Baakse Beek-Veengoot System. (Overijssel, the Netherlands)

Abstract

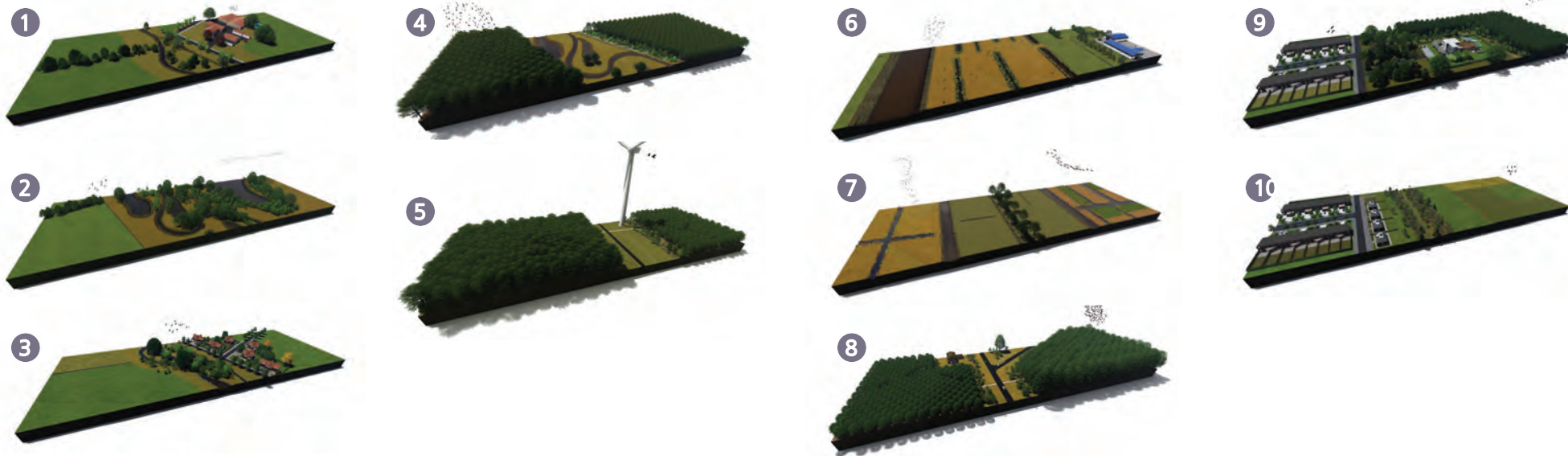
For centuries long, our landscape has been modified for the purpose of food production. Especially in high sand-landscapes, where nutrients and water is scarce, the redevelopment of the landscape played a key role in creating a suitable environment for agriculture. However, currently this systematically altering of the landscape backfires. Problems with water shortages are increasing during summer, and peak discharges during winter become larger. Our landscape is not yet modified to these problems.

Within this thesis, a new " Drought Resilience Casco" is presented. This Casco proposes to restore the landscapes' flexibility by creating a new water system for the Baakse Beek-Veengoot system. The landscape Casco is based on the Casco approach of Kerkstra & Vrijlandt from 1988, in which they propose to make a clear distinction between high and low dynamic landscape elements (e.g. agriculture being high dynamic and nature being low dynamic). However, this approach is rather old and due to new knowledge, we know that these systems hardly work next to each other. Therefore, this thesis proposes to create a third layer: the medium dynamics. This layer will create a barrier between the two extremes and creates a transition zone in which new land-use practices will be executed.

To restore the flexibility of the landscape, a low dynamic framework is proposed in which creeks meander again, and nature areas (such as peat swamps) are used to store water. Within the medium dynamics, new forms of agriculture, working together with nature are proposed. The Casco is elaborated upon, by scaling through the system with the help of more detailed designs, site designs and sections. By creating the new Casco, landscape development will be steered, and landscape beauty can be restored.



Map of the Drought Resilience Casco, focusing on greening and restructuring of the landscape to enhance both drought resilience en landscape identity

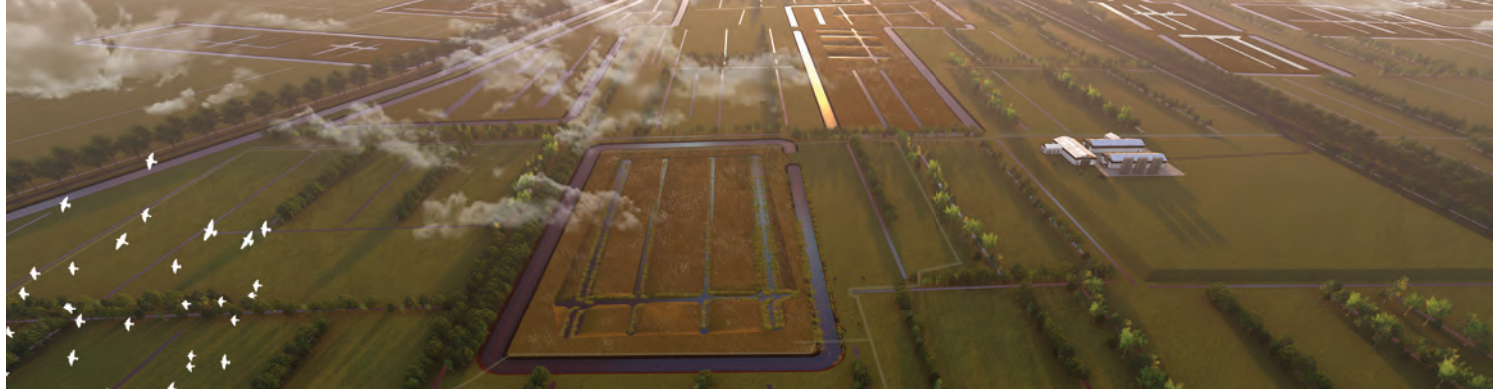


Prototypes of the landscape elements within the drought resilience Casco.

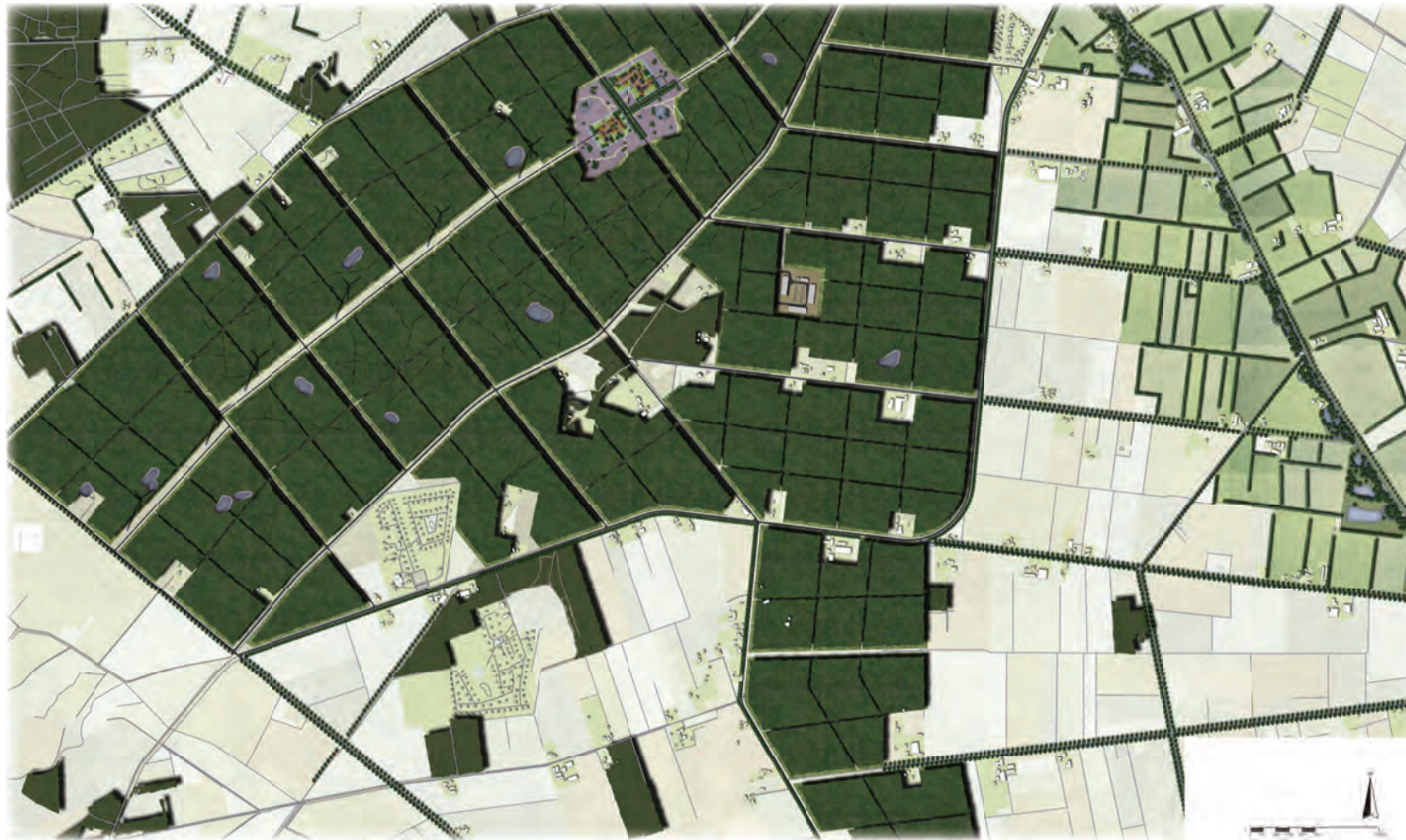




Visualization of walking through the new landscape "sponge"



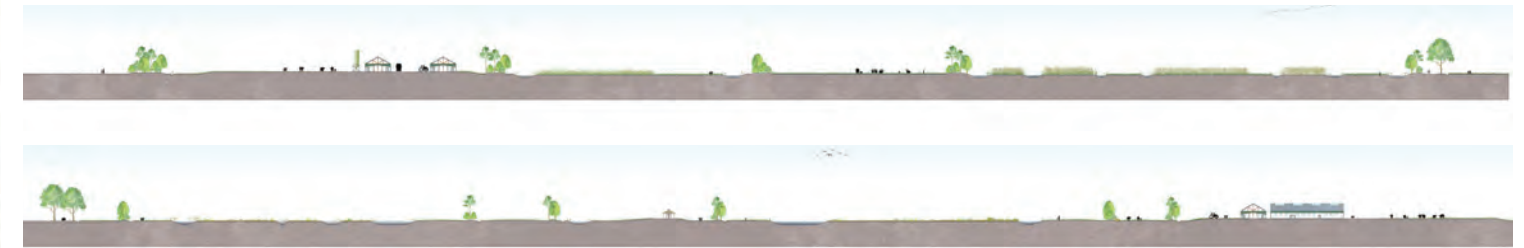
Bird eye view of the landscape "sponge", the peat system.



Site design of the agroforest and creek valley. Including small scale housing and energy transition



The new landscape "sponge": the peat system. An area where peat is formed, water is purified and water buffalos graze



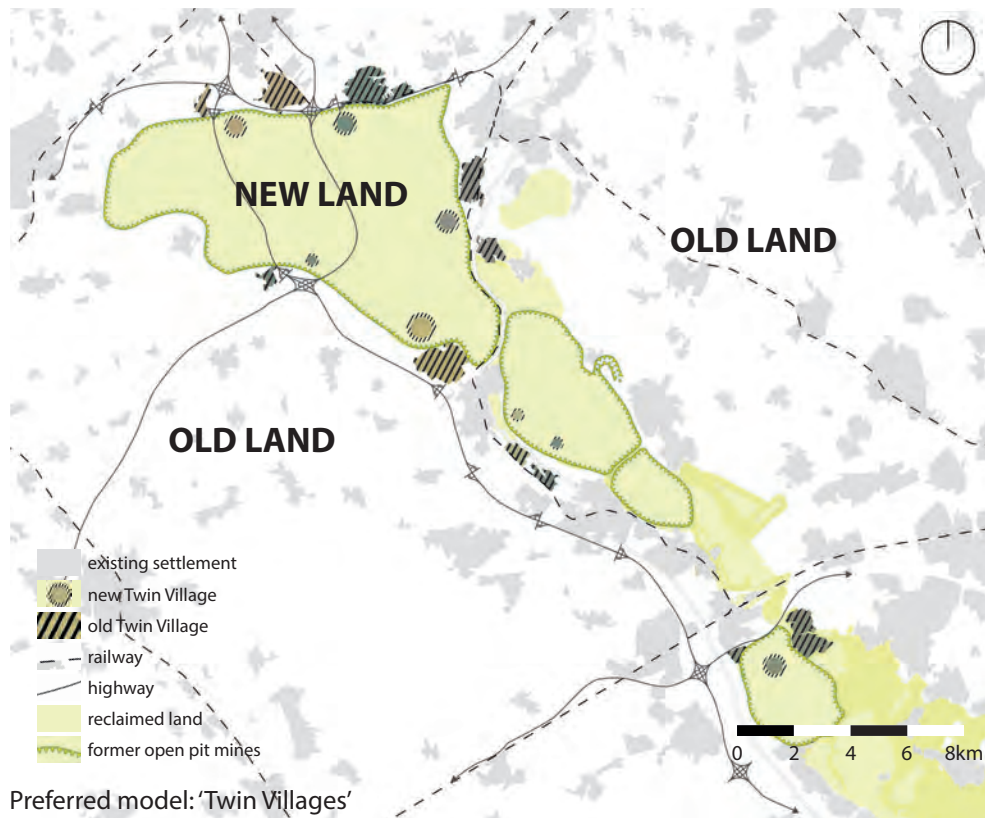
Visualization of the new small-scale housing development, the agroforest and wind turbines



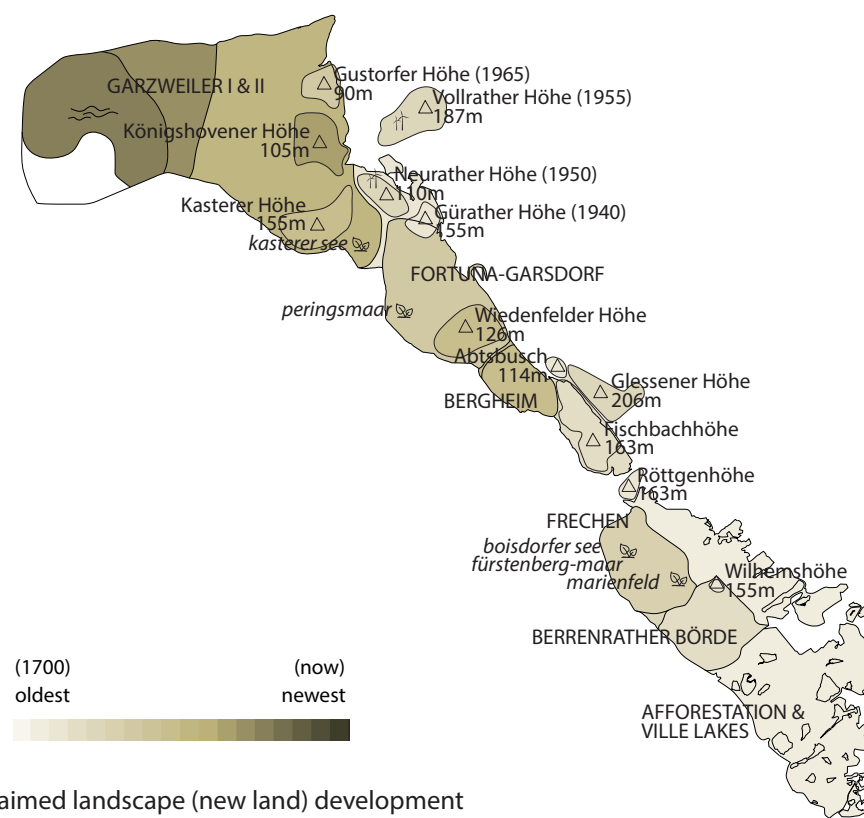
Birde eye view of the new small-scale housing development and agroforest



Section A-A: 'Die Kante'



Preferred model: 'Twin Villages'



Reclaimed landscape (new land) development

Amarens Lock

Name supervisors: Adriaan Geuze and Matti Wirth (RWTH Aachen University)

TWIN VILLAGES

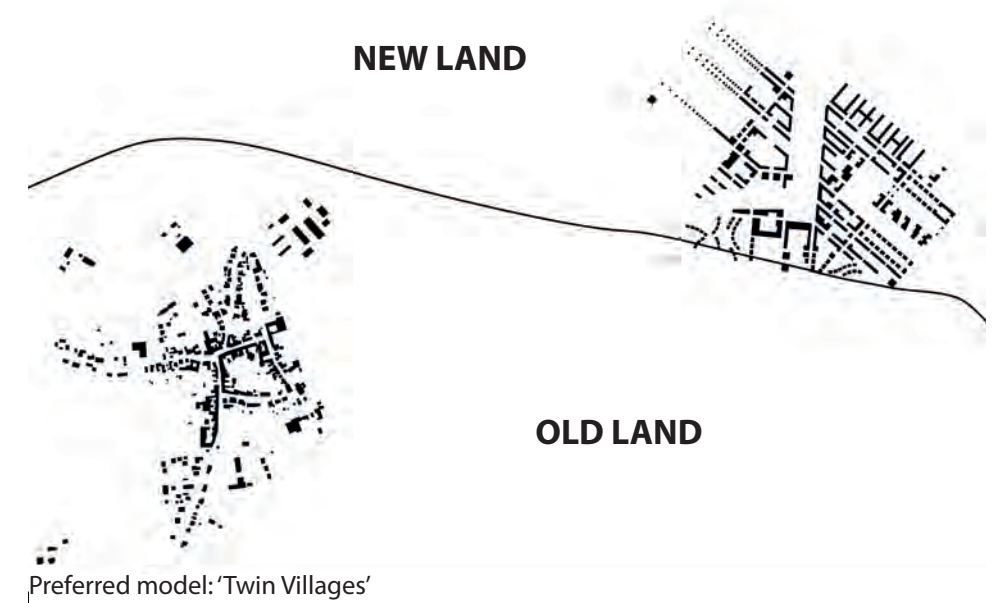
Harmonizing settlement development with the agricultural reclaimed landscape of the Rhenish Mining Area in Germany.

Abstract

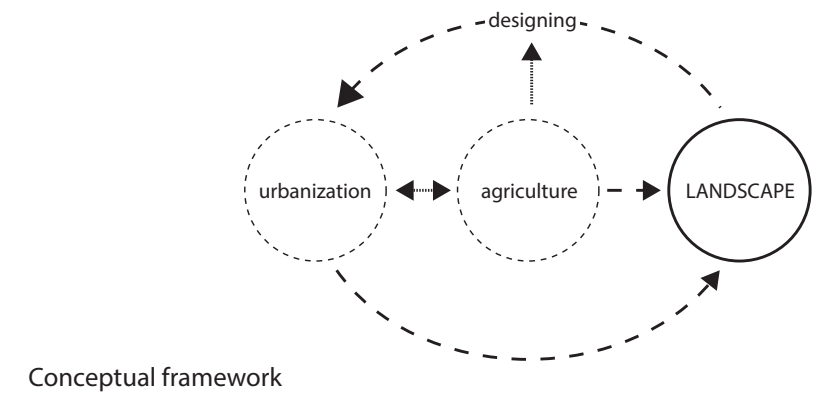
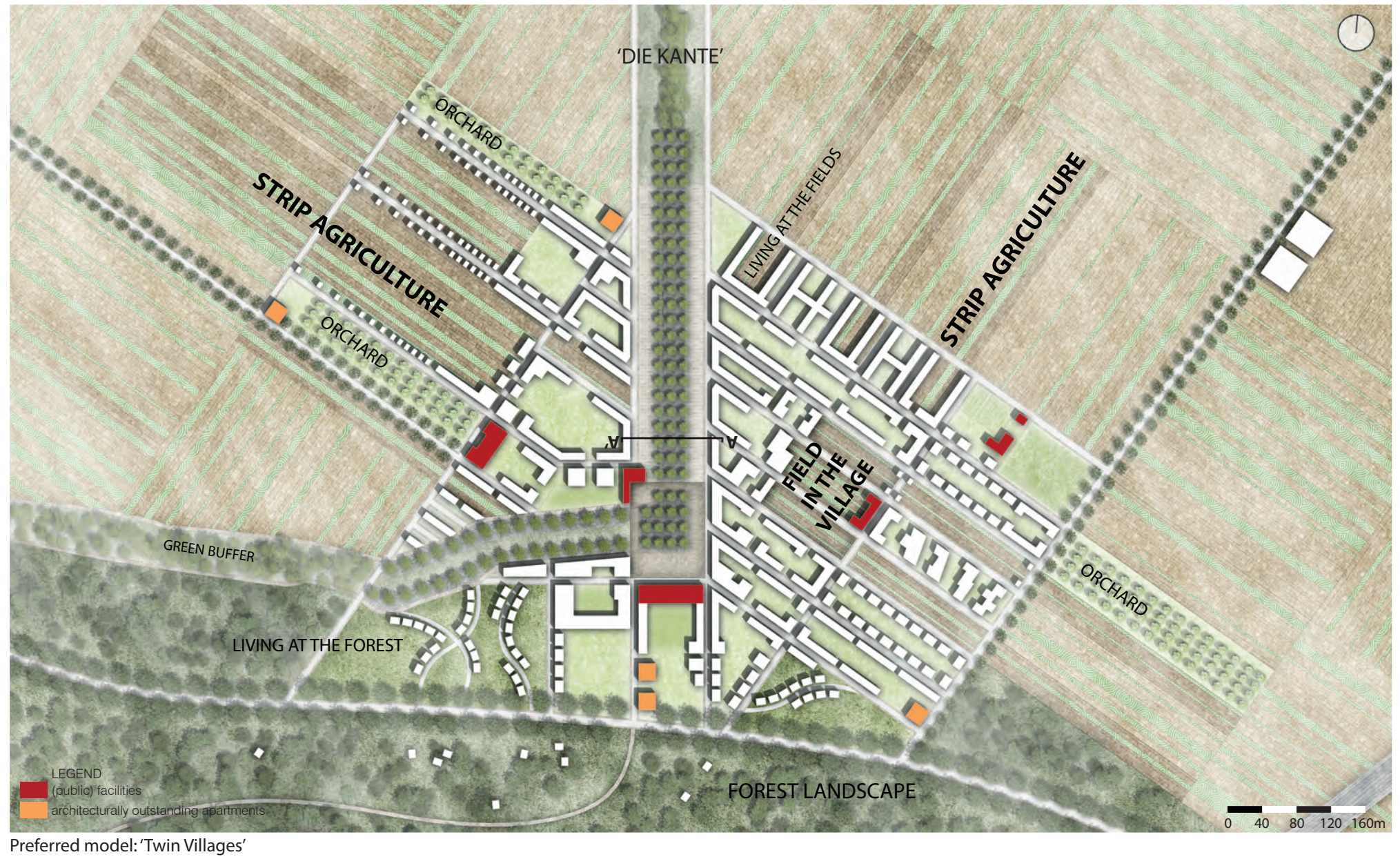
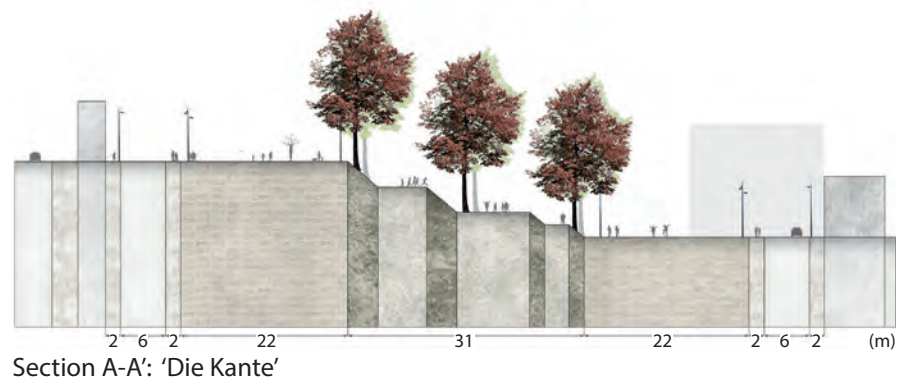
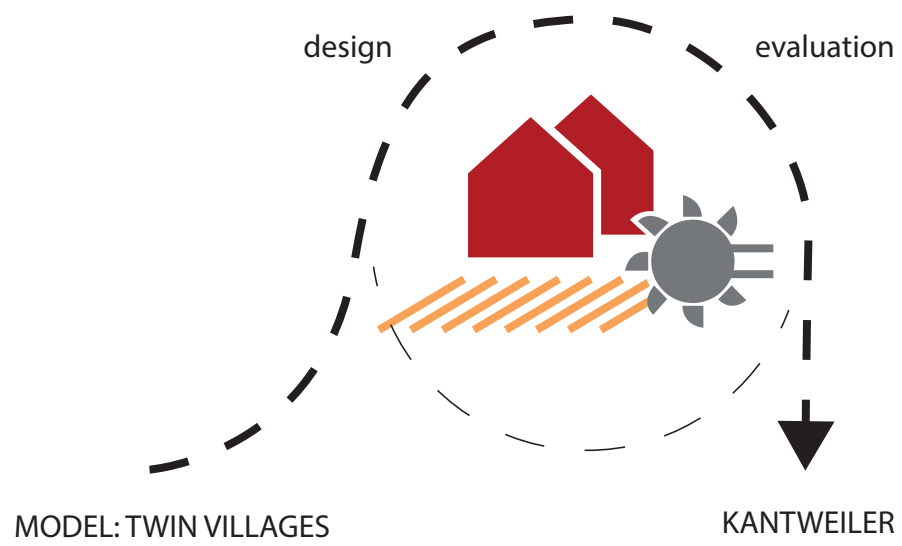
Extensive suburbanisation is taking place around Cologne in the agricultural landscape of the Rhenish Mining Area. An area that, at the same time, deals with unsustainable agricultural practices and large-scale reclamation efforts after a period of open-pit lignite mining. The design research presents a design of agricultural urbanism, which enables alternative settlement development in the Rhenish Mining Area and that contributes to sustainable forms of agriculture and the development of the reclaimed landscape.

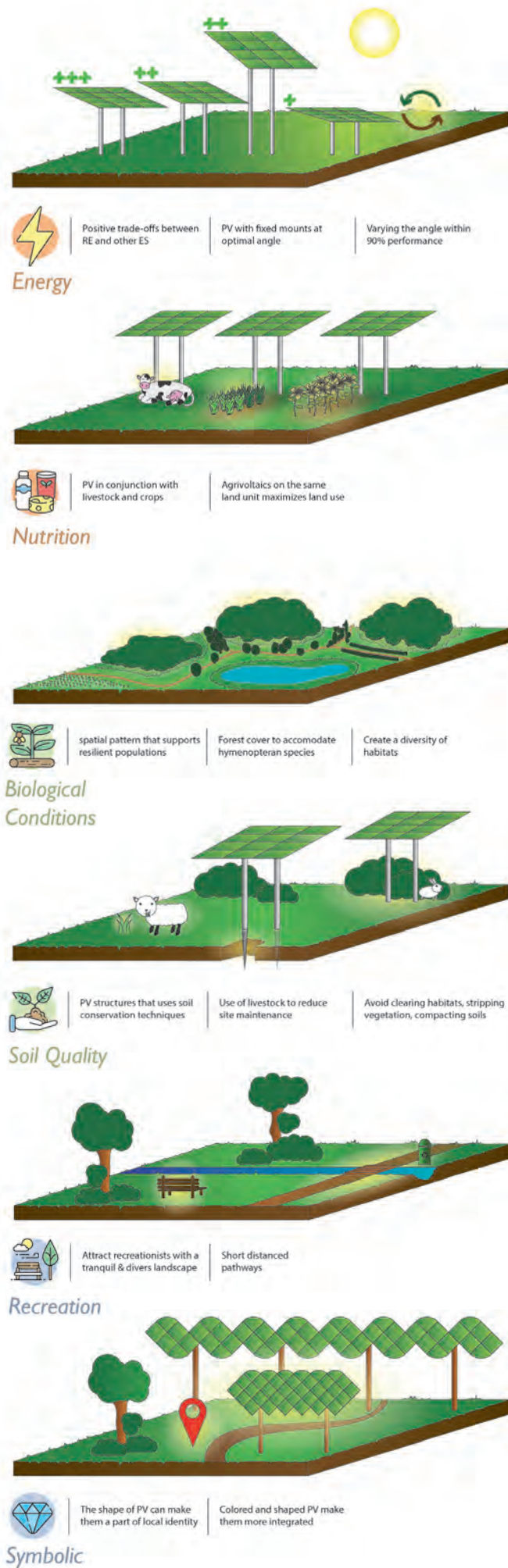
Five settlement development strategies are evaluated and the advantages of the best models are merged into one final model: 'Twin Villages'. With the concept of the Twin Villages the reclaimed, post-mining landscape of the Rhenish Mining Area is enhanced and further developed. The model aims to keep the presence of the urban-rural dichotomy intact. It includes villages that are dispersed over the landscape, but all have a compact concentric form and contribute to a revival of the rural reclaimed landscape, as a rural answer to the exploding urban areas.

The design implementation of Twin Village 'Kantweiler' shows that, when contributing to the landscape qualities, the threat of settlement development to the agricultural sector can be reversed into an opportunity. The design shows an alternative for the unlimited settlement development, which is threatening the agricultural landscape of the Rhenish Mining Area.

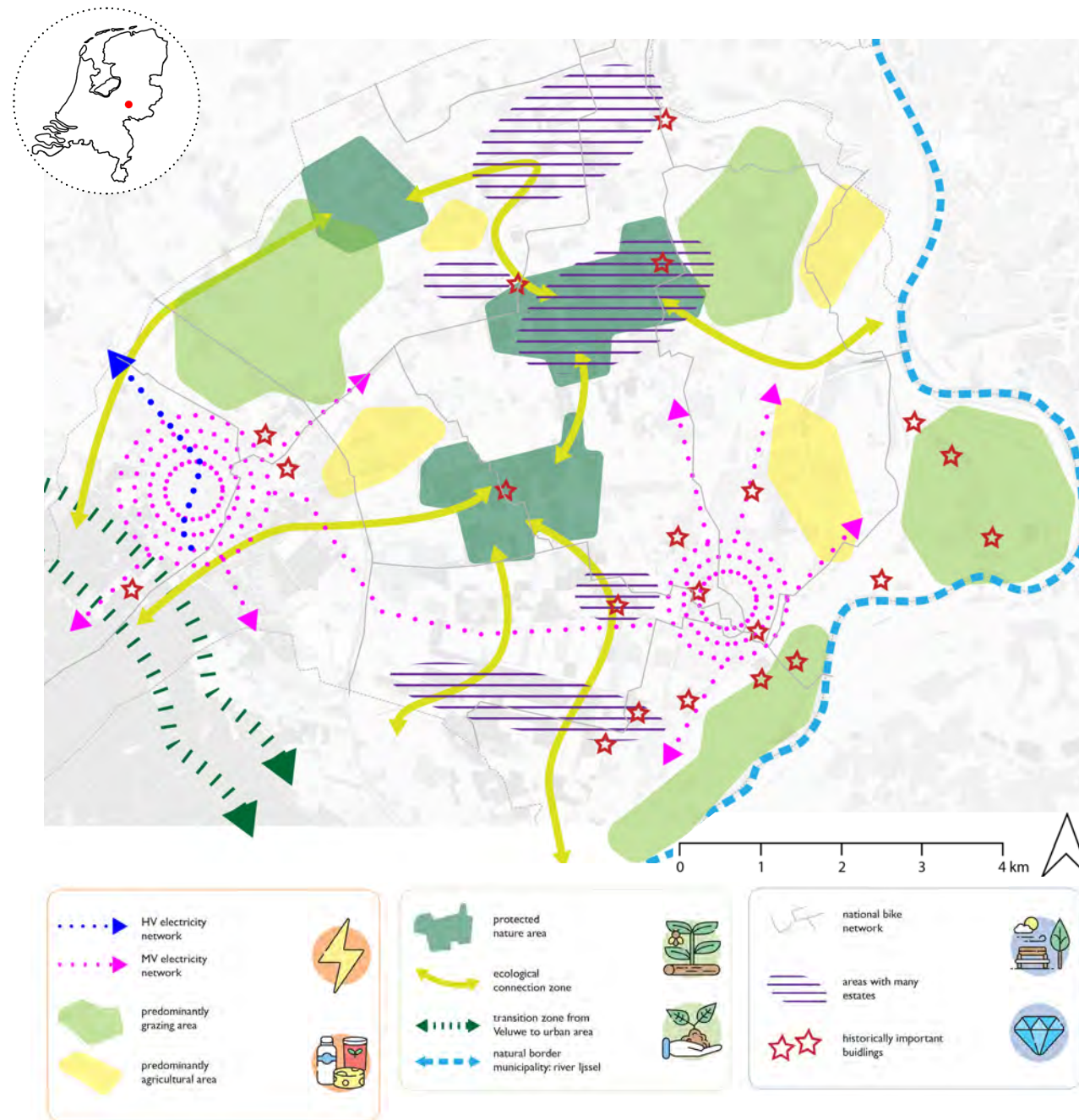


Preferred model: 'Twin Villages'

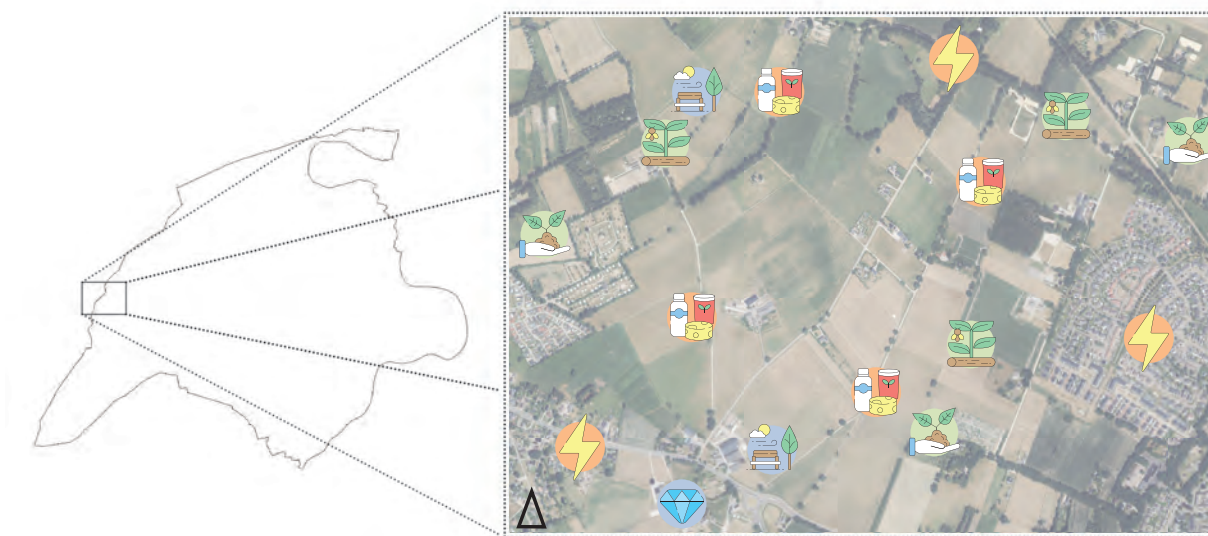




visualized design criteria for USSE in ecological networks



landscape analysis map municipality of Brummen with ecosystem service mapping



ecosystem service map Northwest Eerbeek

Dominik Kriska

Name supervisors:

PHD, MA, Dipl.Ing. S. (Sven) Stremke

Dr. L.H. (Lenneke) Slooff-Hoek (ECN part of TNO)

ECO SOLAR CORRIDOR

Discovering the symbiotic strength of utility-scale solar energy systems and ecological networks in Brummen, the Netherlands

Abstract

This thesis is exploring the combination of ecological networks (EN) with utility scale solar energy (USSE) through the lens of ecosystem services (services with direct and indirect contributions of ecosystems to human well-being). The thesis aims to investigate the possibilities of future landscape compositions that utilizes both existing ecosystem services (ES) and new technology in the realm of USSE systems, to discover the potential symbiotic strength between nature and technology.

The objective of this thesis is to provide a design solution for the integration of USSE in EN that reflects positive trade-offs in (ES). Achieving this objective involves following tasks; development of design criteria that represent positive trade-offs in ES when introducing USSE in EN; determination of elements for a flexible design framework; integration of local design principles in the project area through a model study; evaluation of the model study with a trade-off analysis (TOA); development of an integral landscape design for the integration of USSE in EN. The objective of this research is translated into a main research question: How can utility-scale solar energy be implemented in an EN to create positive trade-offs in terms of ES in the municipality of Brummen, the Netherlands?

USSE can generally be implemented in EN in different ways. It's important to consider the specific needs of local ecology and the energy demand of the region. Any given area does provide at least some types of ES. The orientation of the design towards positive trade-offs in ES is motivated by the broad framework it provides to bring together different services and compare them with each other. Generally, the combination of USSE and EN can create positive trade-offs in ES in areas with poor ecosystem service performance. The better the existing ES perform the less likely USSE will be able to create positive trade-offs.

10.7 MW power for about 2900 households

- Solar field: 13 ha
- Forestry: 6.5 ha
- Agrivoltaic field: 6 ha
- Grassland: 3.5 ha
- 29 ha



model 3 (hybrid model from 1 and 2) with a focus on both USSE and EN for Northwest Eerbeek



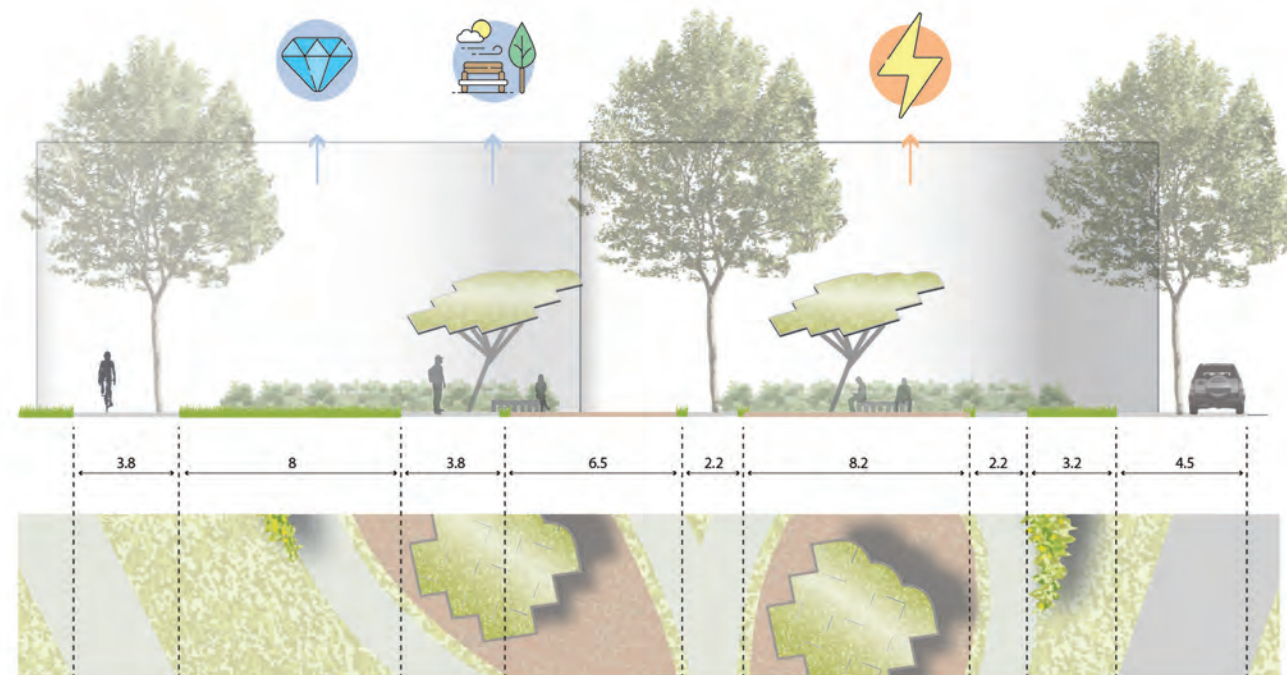
Legend

- | | | | |
|--|---------------------------------|--|--------------------------------------------------------------|
| | agrivoltaic Field | | buildings for recreational, educational and facilitation use |
| | PV on grassfield | | shared road through current settlements |
| | shared road with solar corridor | | entrance to project area through new settlements |
| | wild flower grassland | | entrance to project area through new settlements |
| | ditch between PV fields | | hawthorne hedges around PV fields |
| | recreational eco pond | | sub stations to transform DC to AC |

the integral Masterplan landscape design for Northwest Eerbeek in the municipality of Brummen



visual for the site design at the east entrance



detailed section of the east entrance with indication of enhanced ecosystem services (measurements in meters)



plan of the site design for the east entrance

Community gardening forest

Reflecting on the initial design, the new gardening design pays more attention on the structure and legibility of the site. Based on the theories of horticulture school for the elderly, the restorative feelings are derived from the self-rewarding, cognition improvement and physical benefits. The main concept of the gardening model is to provide rewarding activities, educational activities, physical activities and social activities for the elderly. Gardening is the main activity in the area. Depending on the capacities of different groups, there is a traditional gardening zone for well-function seniors and a caring gardening zone for the seniors with disability. Besides, a green belt is created from the main entrance to the canal, which afford the requirements of cognition, food trades & exchange, outdoor activities and water harvest functions of the space.



sectionAA, traditional gardening zone



sectionDD, caring gardening zone



sectionFF, exercise square



sectionBB, traditional gardening zone



sectionCC, caring gardening zone



sectionGG, fishing

Shiyi Liu

Name supervisors: Rudi van Etteger.

Landscape, a healer for the elderly

Explore a salutogenetic and activating living environment for the elderly + Zwanenveld, Netherlands.

Abstract

Aging population increases rapidly all over the world, so as in Netherlands. With the shift of population, transformations are required on the health care system, elderly housings, city infrastructures and so on, to adapt the aging trend. Meanwhile, disease risks increase with aging, which causes a large burden to the society. To promote the health of the elderly, municipalities pay most attention on the health care system, but ignore the salutogenetic effects of the landscape. Since the discovery of the relationship between human health and nature, healing landscape are regarded as a preventive medicine to diseases. Abundant researches and studies have shown the benefits of healing landscape to the health from the physical, mental and spiritual aspects. However, the application of the healing landscape still needs to explore, for example, the living environment. Living environment is the daily environment of the elderly in which they spend most of time. Nevertheless, the usage of the outdoor environment is unsatisfactory. Seniors have shown a lower visitation to green areas.

Thus, this thesis aims to expand the knowledge on healing landscape and to explore a way to both provide salutogenetic effects and stimulate the engagement of the elderly.

The purpose of the thesis is achieved through research and design process. The first part of research is to form the theoretical framework on the basis of the theory of healing landscape, the theory of age-friendly design and the theory of engagement. By understanding the qualitative elements from the theories, tool boxes are explored for the further testing. The second part of the research is intended to summarize the facilitating factors and constraints of seniors' usage. Zwanenveld is selected as a case to conduct the study. Finally, two testing models are generated and evaluated to get the results. The design models are shown in the pages.



The site selected is in the northeast corner of Zwanenveld. It is an abandoned space with about 5.5 hectares and lies between the Canal maas-waalkanaal and residential buildings. A dike with approximately 1.5 meters high is regarded as the eastern edge of the site. Besides, a railway is in the northern side of the site, generating a slope with 9 meters.

Inner the site are green areas and the foundations of previous buildings remain. At the edges of site, there are partly surrounded by groups of trees and shrubs.

Salutogenetic circles

Nature and garden have the capacity to balance the demands from outside, which includes social relationship and physical environment. A salutogenetic circles provide a main environment that is less demanding for the vulnerable seniors, with a small portion which is more demanding for well-functional people for a attraction. Zoom into the site, on one side is the private blocks where lots of people gather with complex relation and on the other side is the still less demanding canal. The concept of the salutogenetic garden is to bring the elderly from the heaving demanding environment to least demanding cannel, experiencing the demanding less circles in a basic order, reliving their negative mood step by step, and getting completely released and restored. The composition of circles are forest circle, water circle, rock circle and animal circle, derived from the less demanding environment theory. Besides, considering mobility impaired elderly, the caring circles are created which includes all the



Perspective
Community gardening forest



Salutogenetic circles



sectionDD', rock circle



sectionFF', caring circle



sectionAA', forest circle



sectionEE', rock circle



sectionGG', caring circle

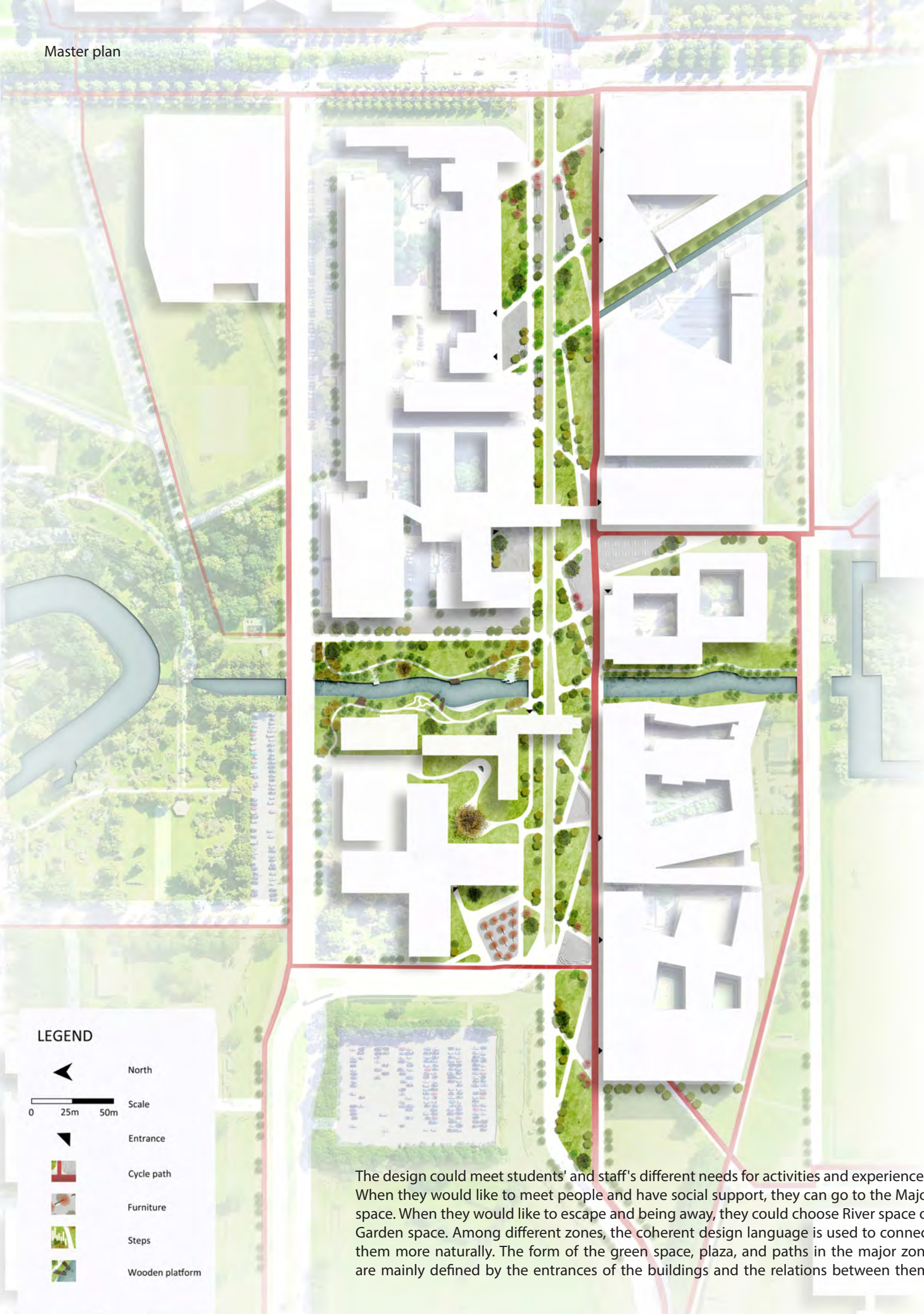


sectionBB', forest circle




sectionCC', water circle

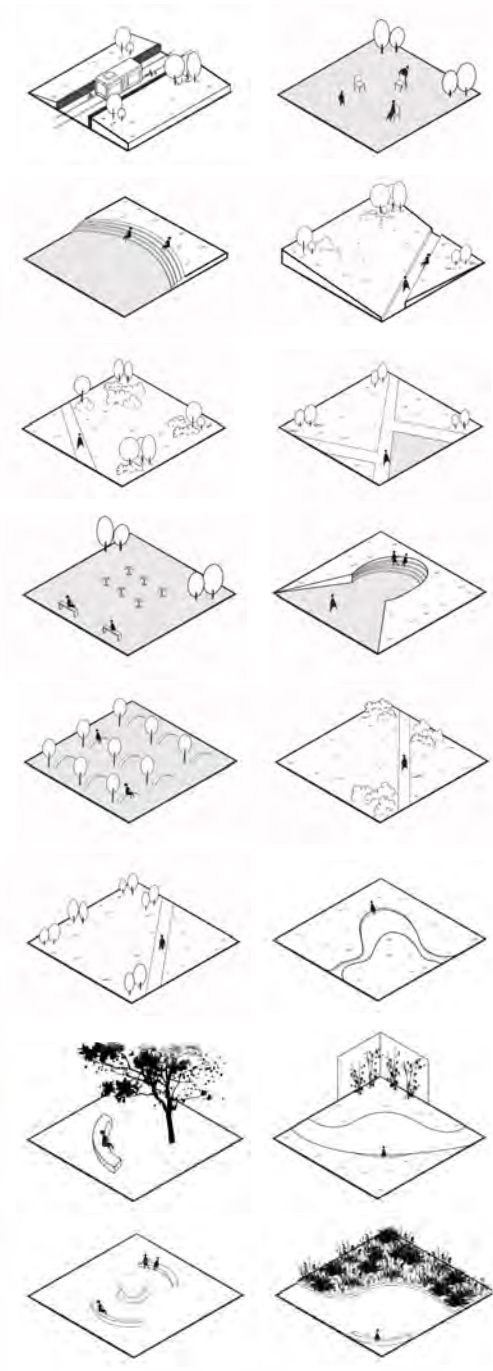
Master plan



LEGEND

-  North
-  Scale
-  Entrance
-  Cycle path
-  Furniture
-  Steps
-  Wooden platform

The design could meet students' and staff's different needs for activities and experiences. When they would like to meet people and have social support, they can go to the Major space. When they would like to escape and being away, they could choose River space or Garden space. Among different zones, the coherent design language is used to connect them more naturally. The form of the green space, plaza, and paths in the major zone are mainly defined by the entrances of the buildings and the relations between them.



Siqi Li

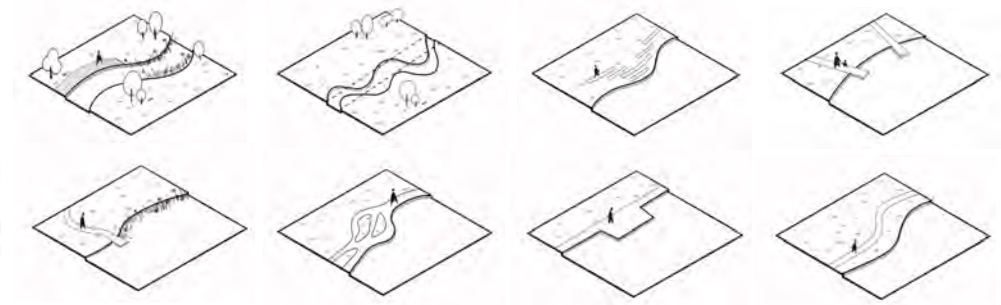
Dr. Ir. R. (Rudi) van Etteger

A healthy campus

Introducing healing landscape into Utrecht University. Utrecht, the Netherlands

Abstract

It is acknowledged that natural space benefits people's mental health. For students and researchers on campus who are quite stressful over the times, it is of vital importance to be taken care of their mental health. It is possible that the healing value of natural space could be applied to the campus landscape. The thesis explores the possible approach to designing a campus with a healthy landscape. Through a wide range of literature review and a case study at the Utrecht University, the principles are discussed. Based on theories and assumptions, the design attention points are given. Finally, the general approach for designing a healthy campus is proposed. From the evaluation on campus, it is believed that the design of the case is valid.



Elements that could be applied in the design



Visualization major space

Visualization garden space



Comparison design and current situation



Section river space



Section major space and garden space



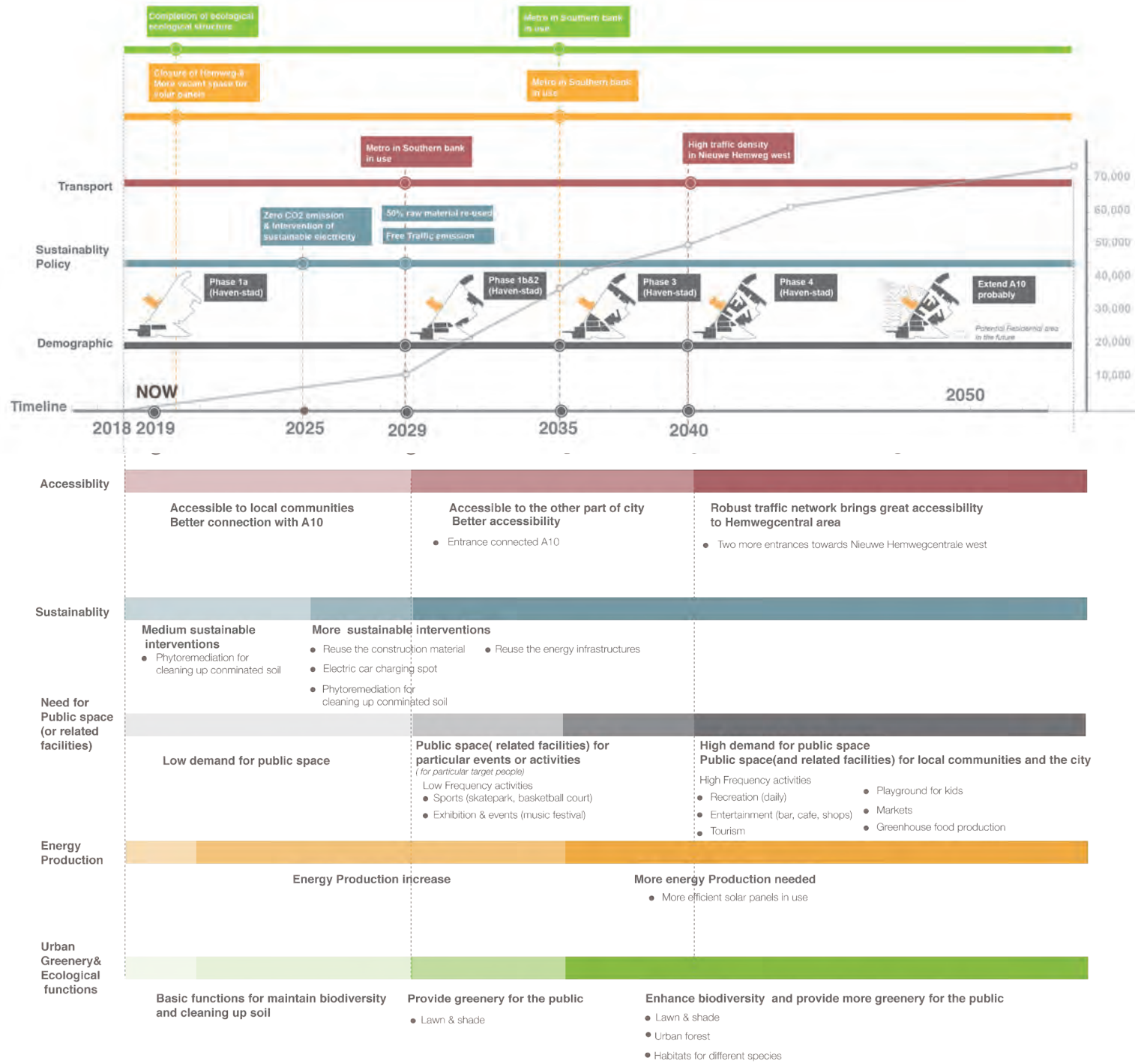
The design attention points of the three zones are given. The major space is the central area of the campus and is the most used area. It has to be multifunctional, convenient, coherent, easy to meet others, relatively open and legible. The river space is the place where for people to hide, to being away, to relax and to be fascinated. It has to be natural setting with nice planting for sense stimulation. The garden space is the areas between buildings. It is designed for relaxing, finding inner peace and being away. The elements applied could help to achieve the design goal.

Visualization major space

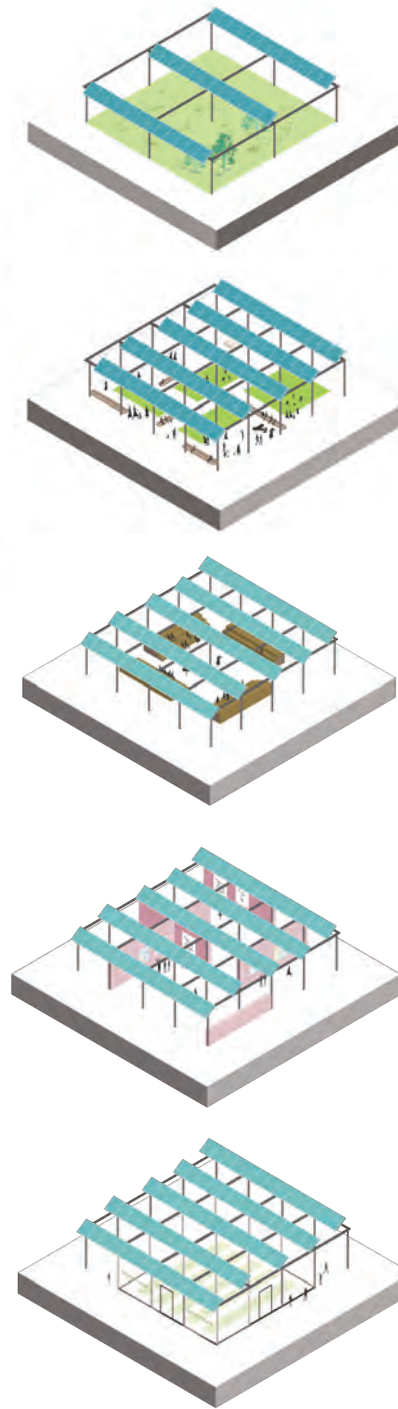


Visualization river space





Modular Design and Typologies



Yingzi Wang

Name supervisors: Sven Stremke

Urban Energy landscape--Circular Energy Park
Transformation of Hemwegcentrale

Location: Amsterdam, Netherlands

Abstract

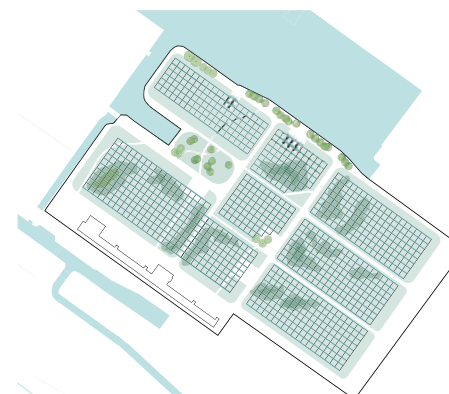
March 8, 2019, the Dutch cabinet decided to close the the Hemwegcentrale power station (coal fired power plants in the western port) in 2020. According to the recommendations by Intergovernmental Panel on Climate Change(IPCC), Netherlands need achieve an 80-90% reduction in CO2 by 2040 compared to 1990, which means a 25% reduction by 2021. In accordance to the sustainability organization Urgenda, to meet the goals on time, additional measures have to be taken to speed up. The closure of the powerplants is one of the measures to meet the Urgenda goals. Hemwegcentrale power station was the pride of Amsterdam in the fossil fuel energy era. It is next to the Haven-stad, a phased housing development project in Amsterdam and adjacent to the ecostructuur. After the closure, the transformation and redevelopment of Hemwegcentrale will be an issue in a transition towards to sustainable energy in such urban context.

This thesis intends to explore the potentials of the Hemwegcentrale area as an urban energy landscape in a transition towards sustainable energy landscape in the complex context brought by a dynamic process of urban development (mainly Haven-Stad) in the following decades. In this thesis, the dynamic urban context was analyzed from 3 aspects urban development (Haven-stad), energy and ecology to find out the impact on the transformation of Hemwegcentrale and select the criteria for sustainable energy landscape. Based on the context analysis, 3 models were developed to explore the potentials and different possibilities of Hemwegcentrale in the future. By evaluating the design models with the selected criteria, specific design strategies are generated to be applied in the final design.

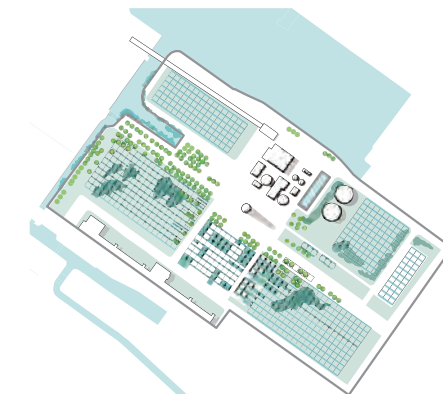


Design Models

Energy Model



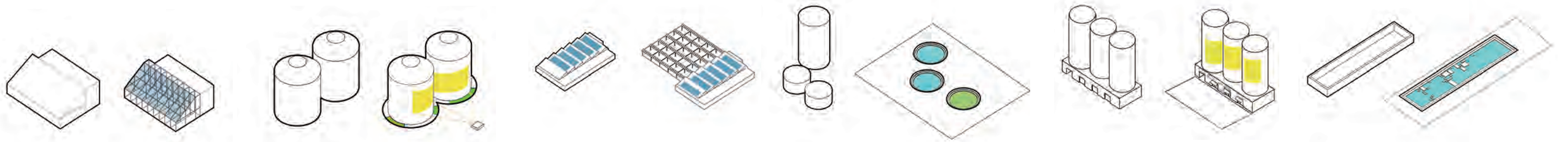
Urban Park Model



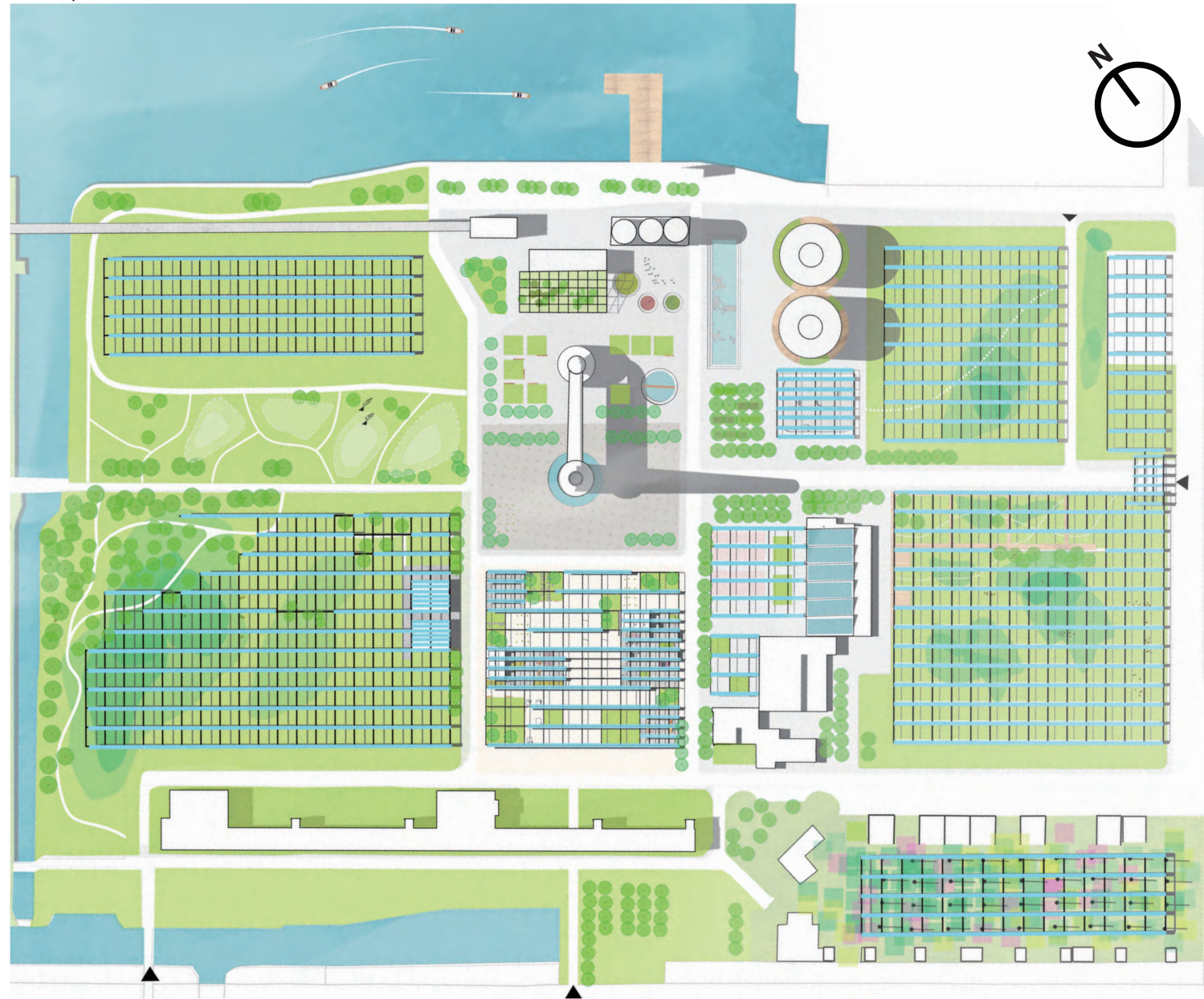
Ecological Park Model



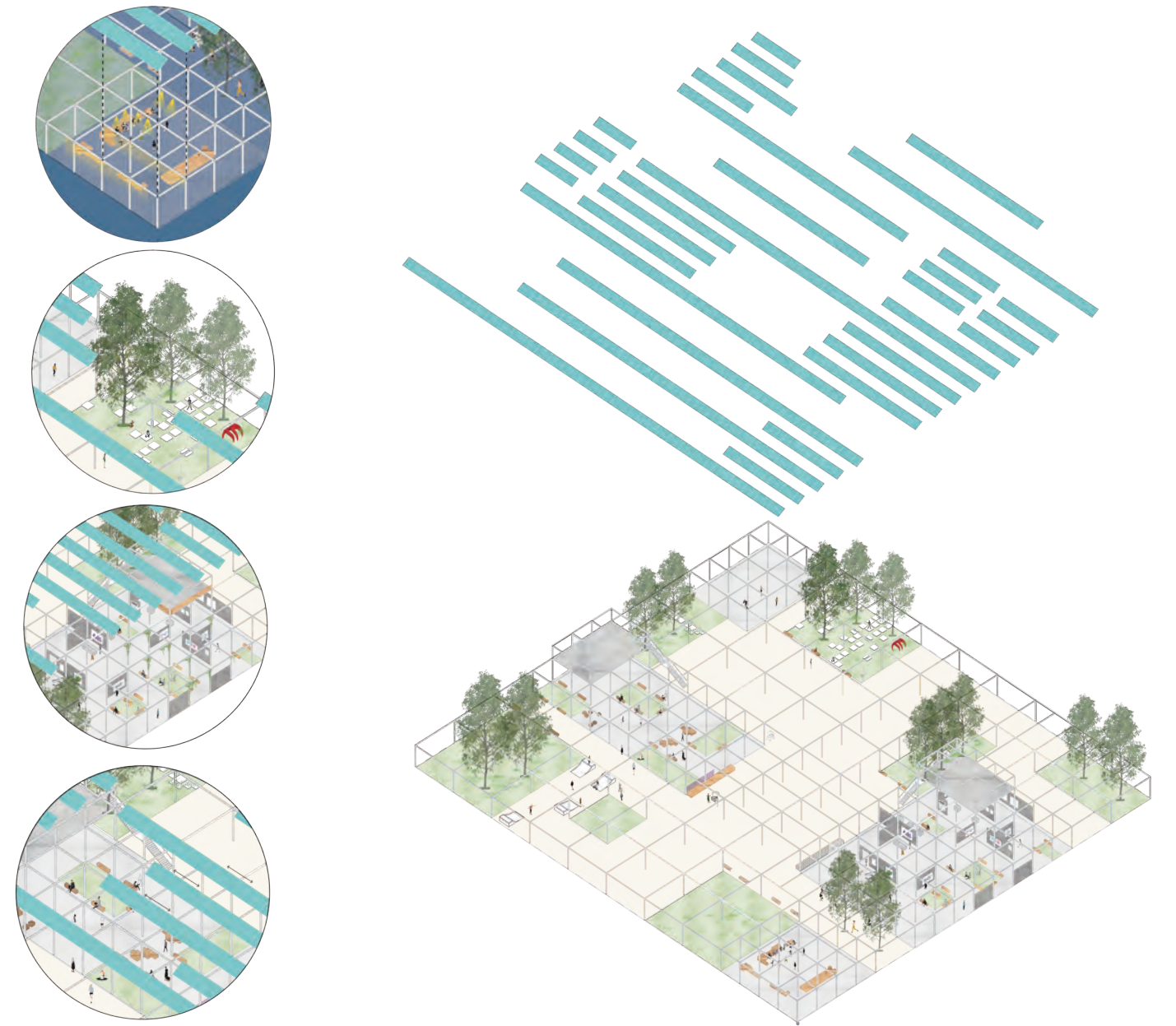
Transformation of old energy infrastructure



Masterplan



Site design



Section



Jan Willem van Veelen

dr.ir. Ingrid Duchhart

ir. Wiwi Tjiook (Gemeente Rotterdam)

Experience Bandung Tempo Dulu

Creating walkable public space which narrates a shared heritage, Bandung Indonesia

Abstract

Shared heritage is important for establishing a local identity and consist of tangible and intangible elements which embody cultural ties made in the past. This intertwining of Dutch, Chinese and Sundanese cultures can be recognised in the city of Bandung, Indonesia. In Bandung the shared heritage is under pressure due to densification within the city centre and increasing traffic which prevent people from experiencing the shared heritage. Research is done to ensure the longevity of the built heritage. However, the focus of this research is mainly on built shared heritage and not the public space surrounding it. Knowledge on the experience of the public space surrounding these shared heritage sites is missing. The study tries to fill this gap by researching the approach and experience of shared heritage sites in Bandung, using the concepts of landscape narrative and walkability. Thereby, the thesis sets the objectives of generating valuable knowledge within the field of landscape architecture on the experience of shared heritage and it proposed designs for sites, within the centre of Bandung, to enhance the shared heritage experience. A photo content- and a phenomenological analysis concluded that the public space is currently not walkable and offers no connection with the heritage. Therefore, clustered guidelines were introduced to enhance the experience of shared heritage. The guidelines were translated into a designs, which introduced elements to the public space that re-link the connection between heritage and the surrounding public space, but still allow the current-day use. Hereby the study concludes that the experience of shared heritage transcends into the public space. People can get immersed in the different cultures, when the elements within the public space are observed in sequence. The experience of the different cultures of shared heritage creates a common identity for the city of Bandung that transcends cultures.

Keywords_

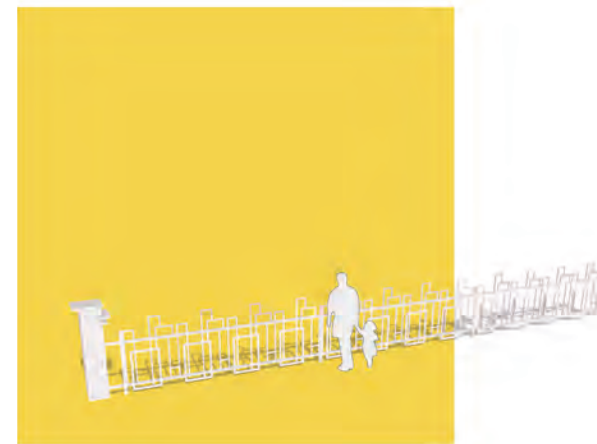
Shared heritage, Heritage experience, Public space, Walkability, Landscape narrative, Bandung, Indonesia, Landscape architecture



Formal new axis towards the Dutch station building



Multifunctional pavilion reflecting Dutch shared heritage



Gate and fence element reflecting Dutch shared heritage





Axonometric view of Dutch square within the Sundanese shopping street



Small square in front of Dutch shared heritage, in a Sundanese shopping street



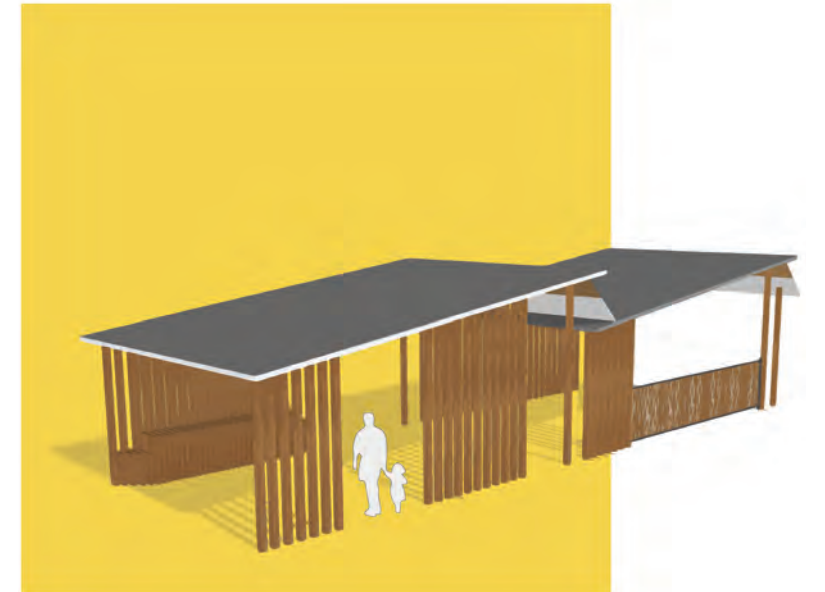
Gate reflecting Chinese shared heritage



Gates within the Chinese quarter

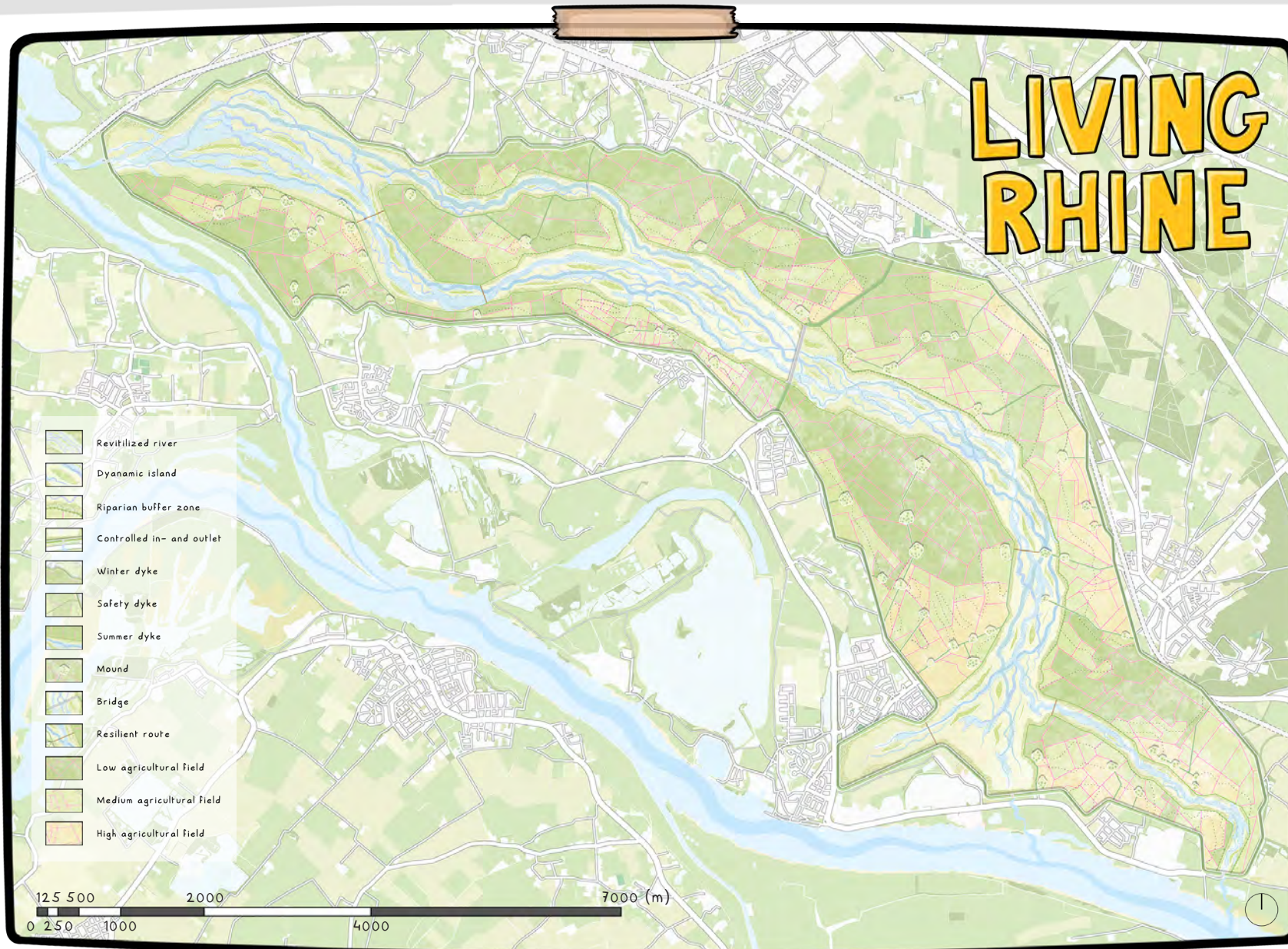


Multifunctional pavilion reflecting Sundanese shared heritage



Multifunctional pavilion reflecting Sundanese shared heritage





Final design of the Living Rhine on the macro scale level



Artist impression of the revitalized river: relics of the distant past are brought back to life

Rob Stuijt

Name supervisors: João Cortesão and Agnès Patuano

RESILIENT RIVERS

An explorative design research into acquiring flood-resilient design principles in Dutch river systems

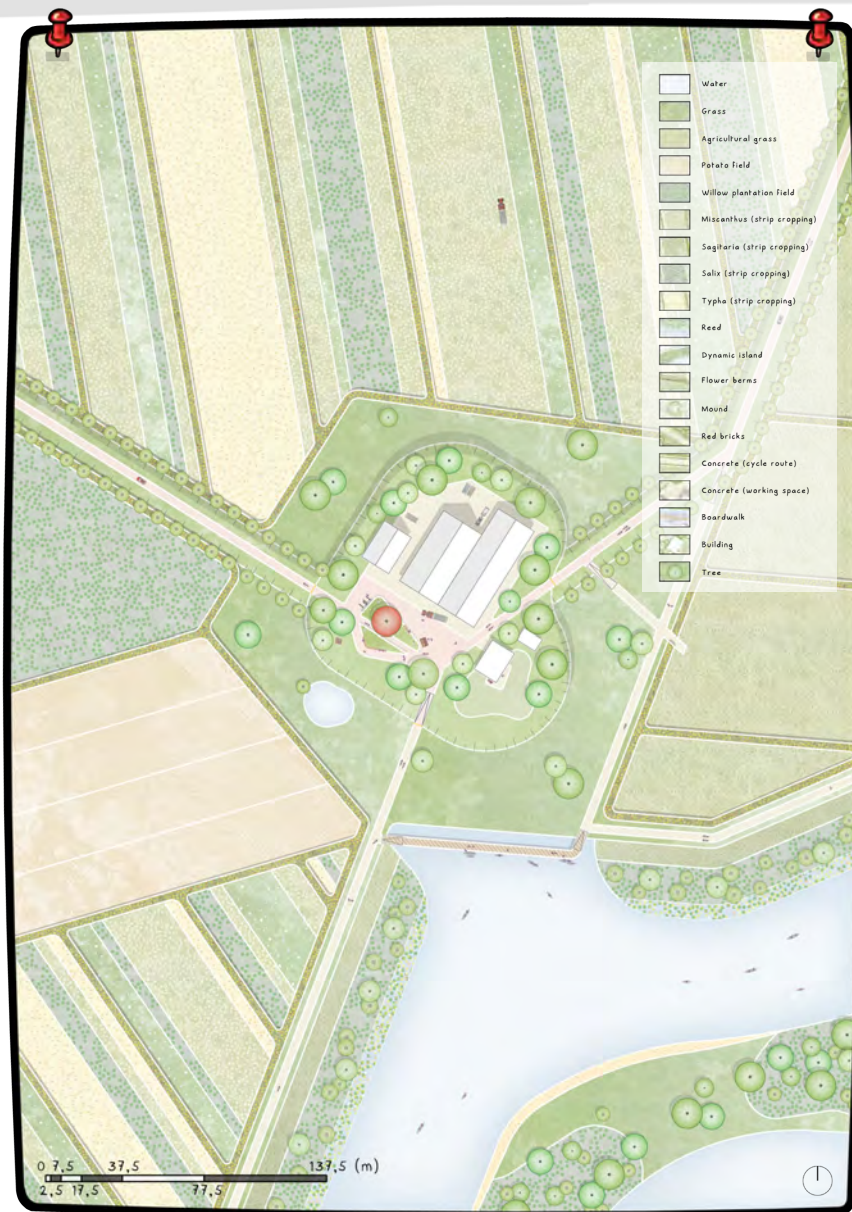
Abstract

Flood risks in the Dutch river system are relatively high. Due to climate change, it is expected that Dutch river systems have to deal more often with highly fluctuating water discharges. In this thesis, it is hypothesized that by applying flood-resilient strategies, a solution is offered to deal with these developments. Such resilient strategies address the ability of the river system to recover from floods. Though, a translation of the concept of flood-resilience towards practical principles remains largely excluded. Hence, this thesis focusses on assembling flood-resilient design principles that can be applied in Dutch river landscapes.

First, an inventory is made of flood-resilient design principles that are applied successfully in Dutch river landscapes. Next, the design principles and knowledge that have been acquired before, are tested at one specific site: the Rijnstrangen area or Oude Rijn. This region used to be the former river course of the Rhine but nowadays this region functions as a dead river arm, which is called in Dutch: 'strang'.

In the final design of the 'Living Rhine', the Oude Rijn is completely revitalized. Through an actively controlled in- and outlet, the river is reconnected to the broader river system. The original system of summer dykes has been restored, within which the natural river processes take place. In times of extremely high river water discharges, the Living Rhine can act as a water storage area. Moreover, the area is provided with a renewed infrastructure network. In this way, the alluring river landscape, with the Living Rhine in particular, can be optimally experienced.

The final design is evaluated after which new **flood-resilient design principles** are proposed. The established design principles ensure that complex flood-resilient strategies can be translated into coherent design understanding. This simplifies the transfer of flood-resilient knowledge between different fields of expertise, including the ones of hydrologists, designers and decision-makers.



Final design of the Living Rhine on the micro-scale level



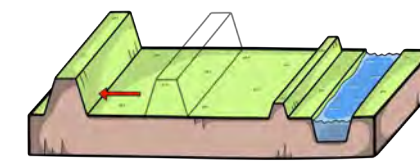
Artist impression of the public square on top of the mound



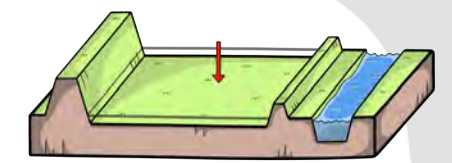
Artist impression of the new flood-resilient agricultural system



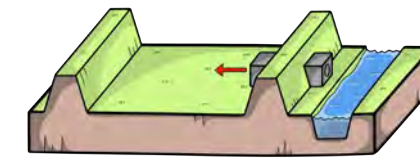
Artist impression of the region functioning as a water storage area



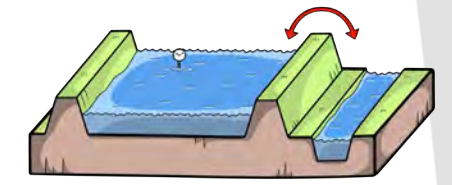
A1: dyke relocation



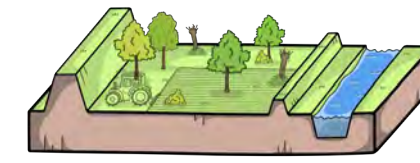
A2: floodplain excavation



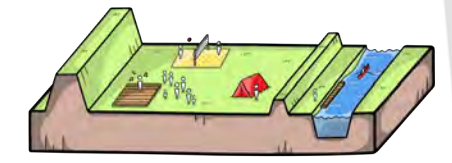
A3: polder system



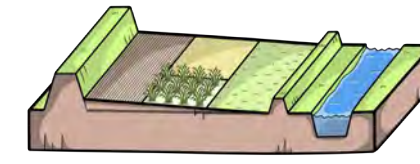
A4: water storage area



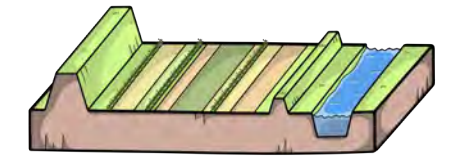
B1: fully change land use



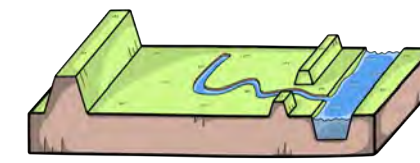
B2: flexible recreational facilities



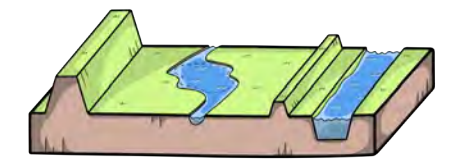
B3: elevation based agriculture



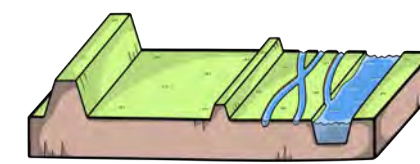
B4: strip cropping



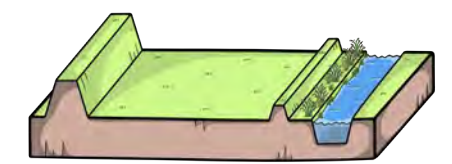
C1: excavated channels



C2: incorporate water bodies



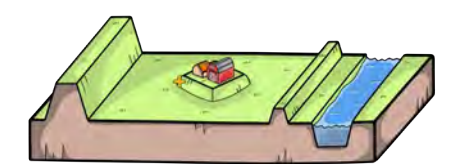
C3: establish channel diversity



C4: natural embankments



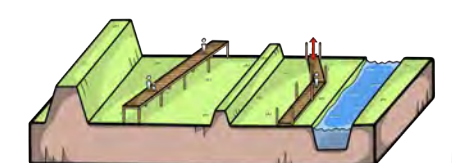
D1: refuge hills



D2: mound



D3: summer dykes



D4: flood resilient paths

Flood-resilient design principles

Hao Yan
Supervisor: Sanda Lenzholzer

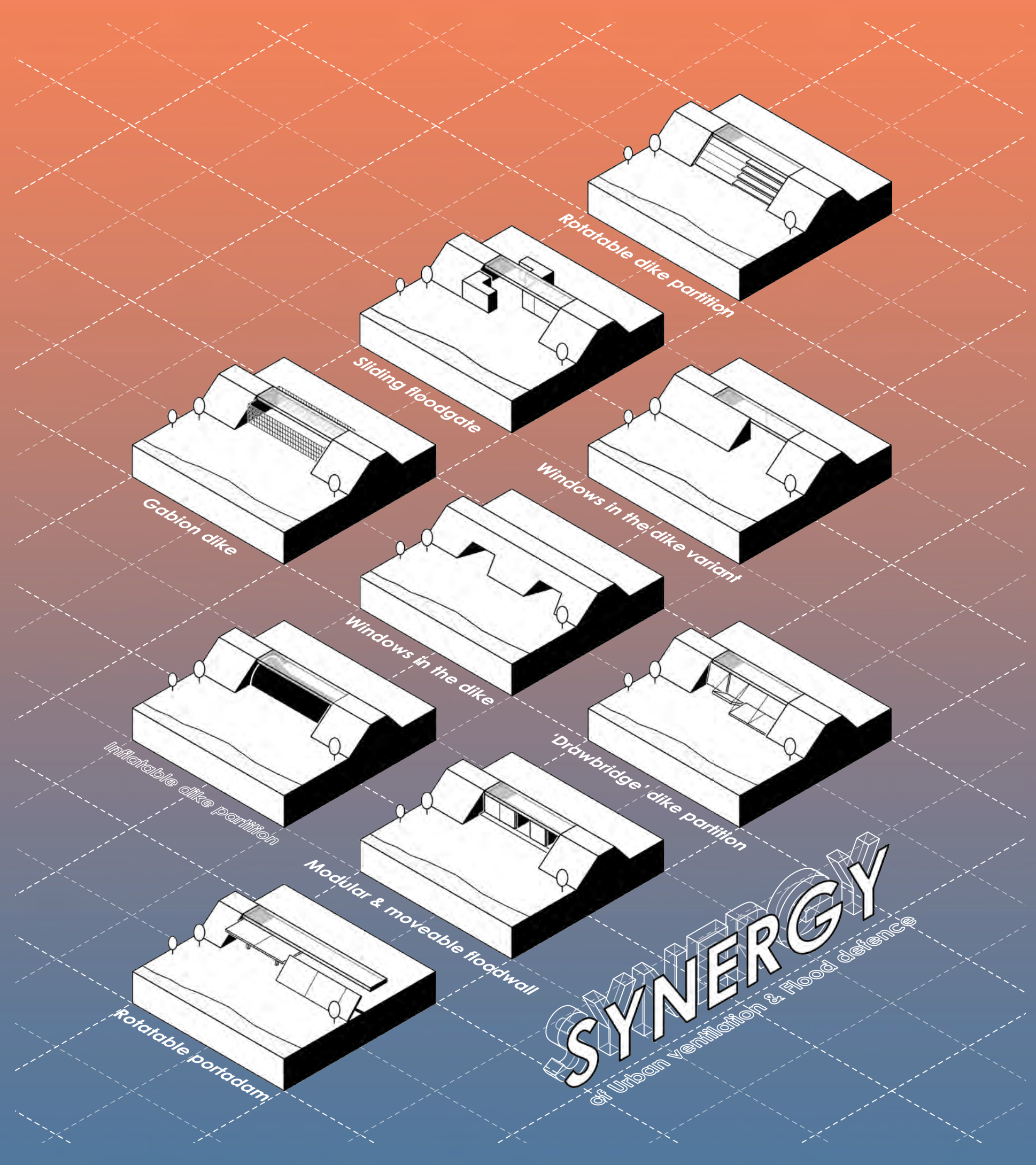
Synergy of urban ventilation and flood defence

Abstract

Urban climate is strongly related to topographies. The urban heat island is happening in the urban fabric when cold air zones appear in the open and green landscape. Due to climate change and urbanization, the urban heat island would hit more people harder. Therefore any potential urban cooling resources should be utilized. Thermal-driven winds between floodplains and built-up areas is highly valuable. In order to invite the cool breeze into Dutch cities, the dike that is currently playing the role of a barrier needs to be altered. A seasonal flexible flood defence alternative is believed to be possible because flood defence (winter to spring) and urban cooling (summer) are never needed at the same time.

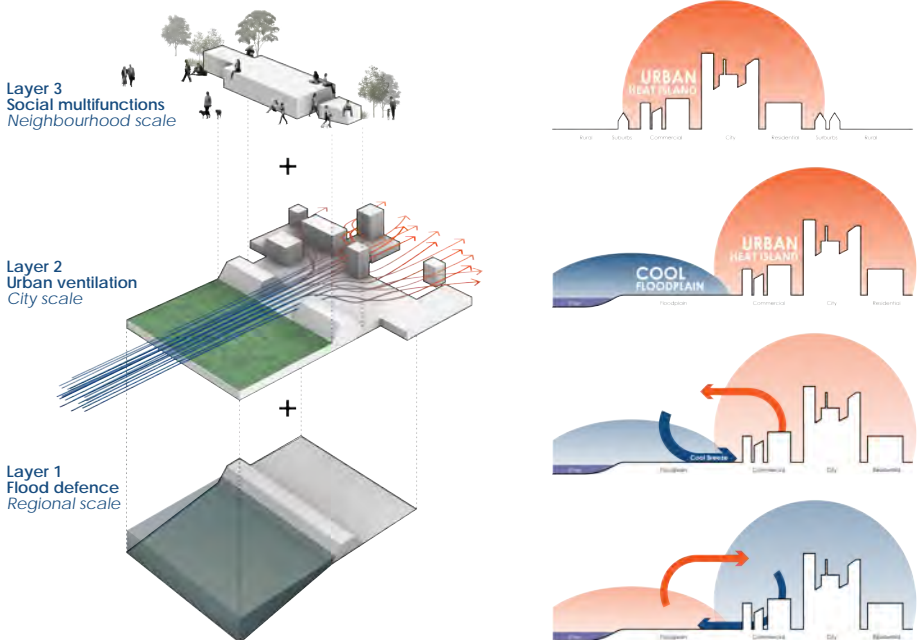
To study the cool air exchange between the floodplain and the urban area and the hampering effect of the dike, the microclimate simulations were made through ENVI-met for the testbed. The simulations indicated that the cool breeze is happening between different topographies where the temperature difference occurs, and has the significant cooling effect in the neighbourhood. According to the findings, eight concept models were designed based on the idea of opening for ventilation and closing for flood protection. Along with the research through design process, these alternatives were improved, detailed and selected. Eventually, the inflatable dike partition, the modular & moveable floodwall and the gabion dike were considered to have the most efficient ventilation and the most stable structures for flood defence. After that, they were applied in the site-specific landscape design in order to explore social multifunctions the new structures could provide.

At the end of the research, three prototypes of the adjustable flood defence structure were generated to replace the traditional Dutch dike, where heat problems is adjacent to the floodplain. In addition, both the neighbourhood-oriented and tourist attractive multifunctions were identified for each alternative.

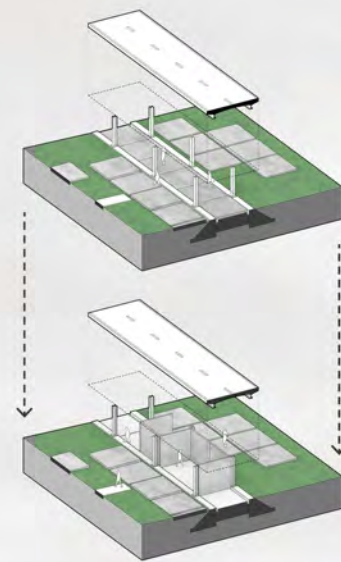


SYNERGY

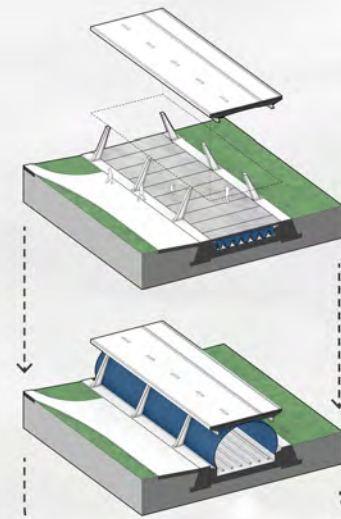
of Urban ventilation & Flood defence



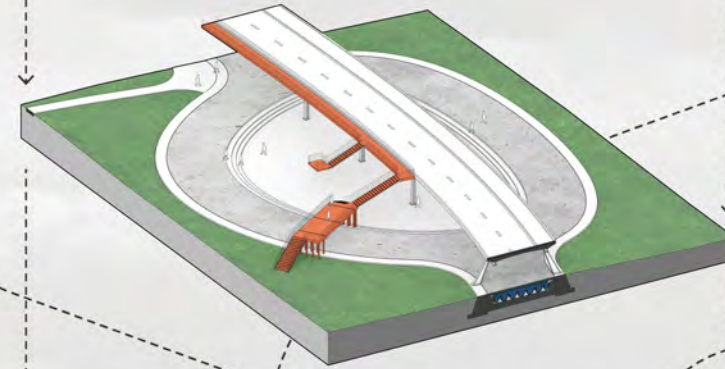
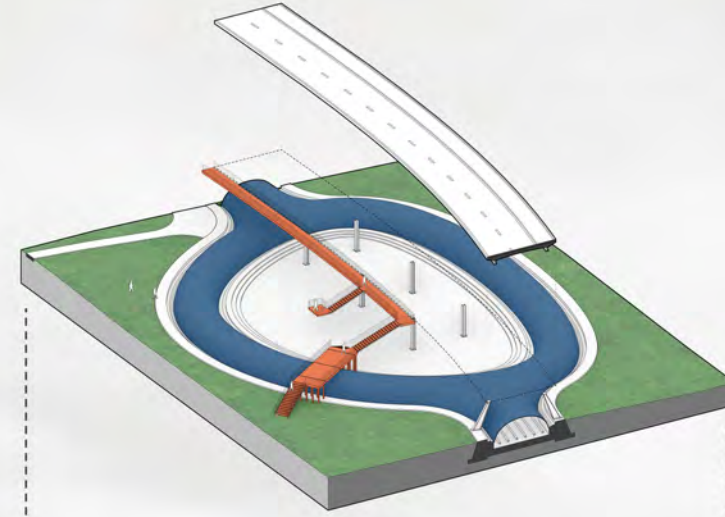
The new adjustable structures achieve the flexibility to flood defence and urban ventilation, at the same time create places with unique characteristics, which have potential to serve multiple sustainable & funny social activities. The concept of inflatable rubber dike, moveable floodwall and gabion dike are selected and applied for the IJsseldijk to make 3 parallel site designs which respectively has its strong point.



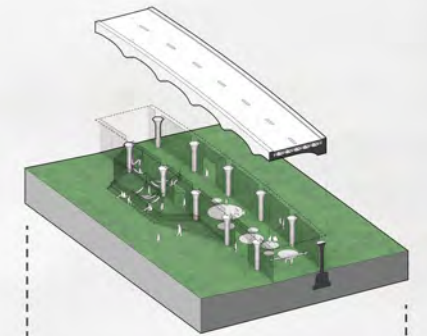
Standard section of moveable & modular floodwall



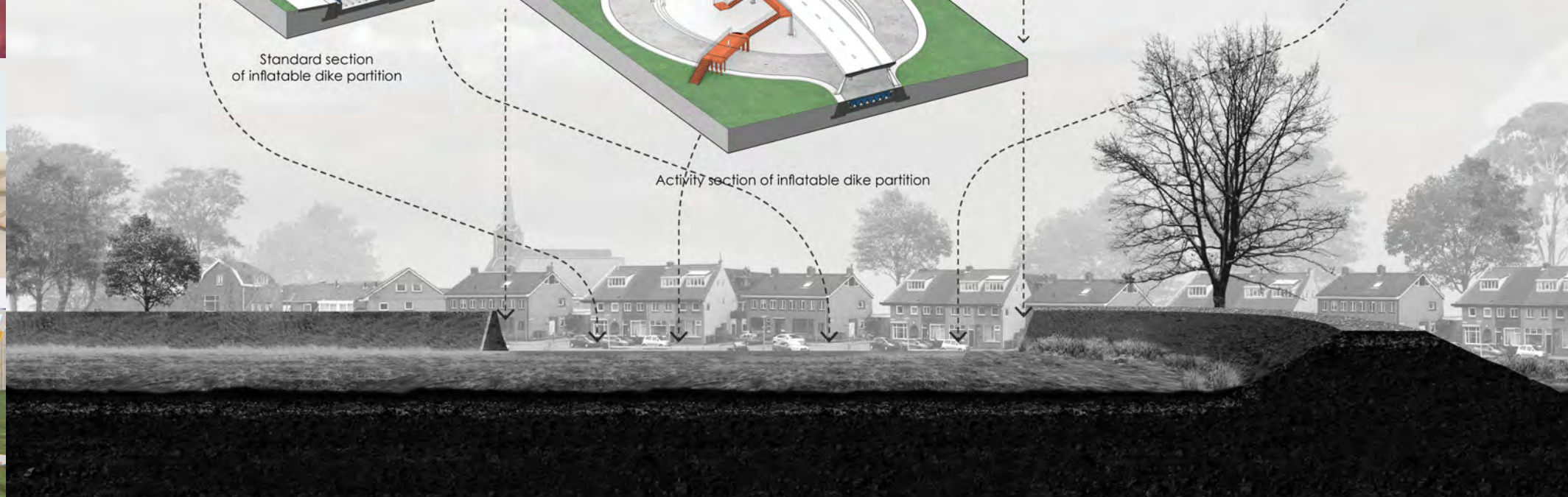
Standard section of inflatable dike partition

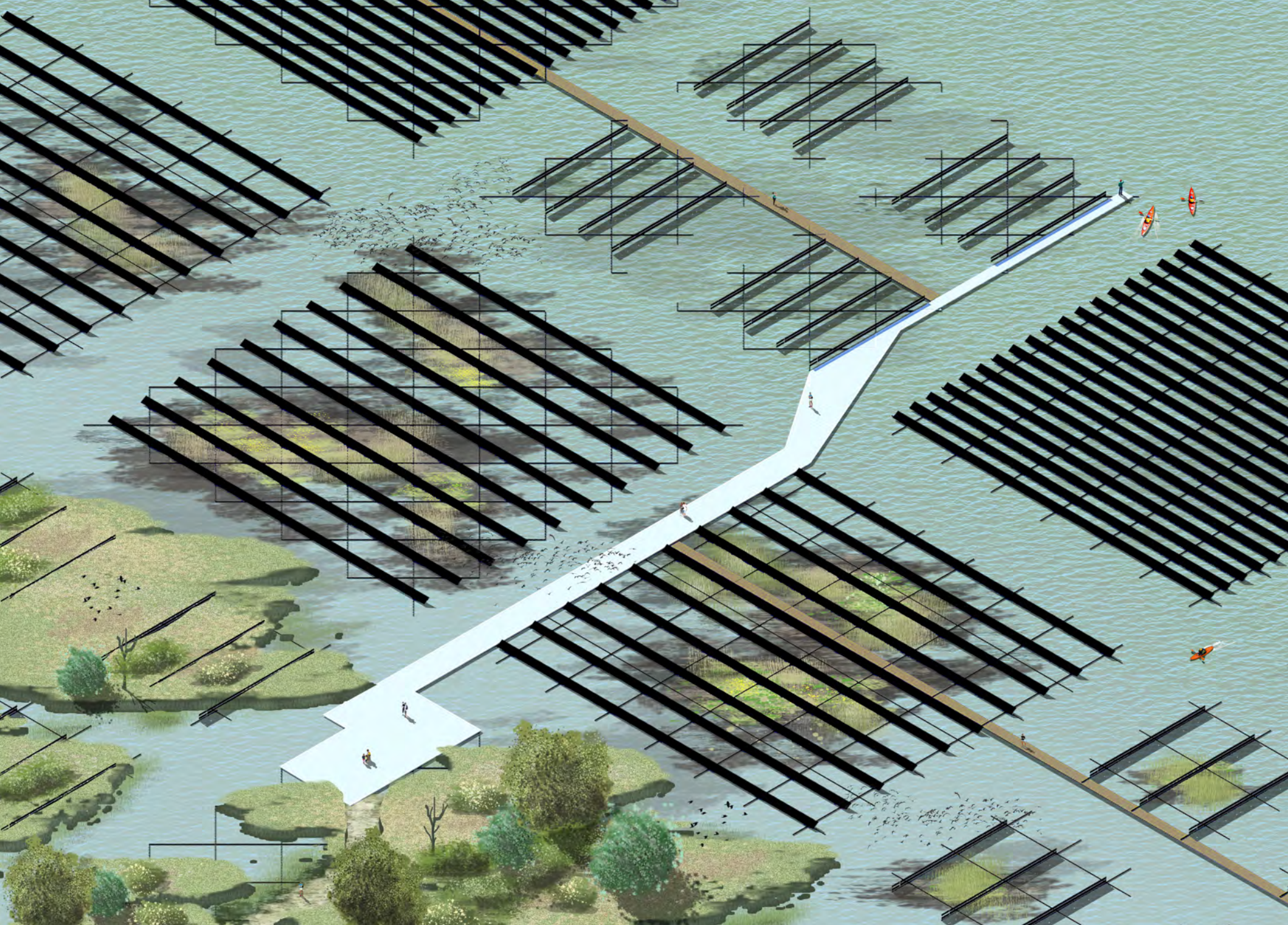


Activity section of inflatable dike partition



Standard section of gabion dike





Isometric view of multiple wicker modules in their process of hydrosere and being taken over by nature

David de Boer

Supervisors:

Sven Stremke

Paolo Picchi (external, Amsterdam Academy of Architecture)

Solarchipelago

Designing energy transition in the IJmeer along ecosystem change

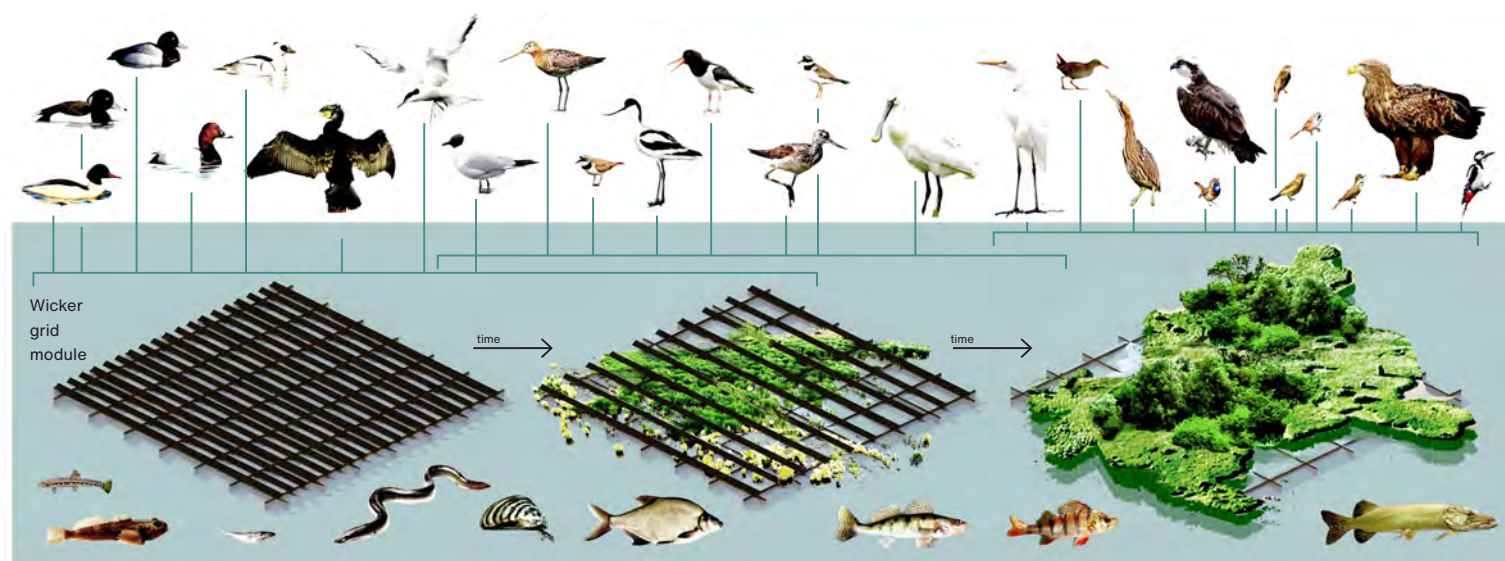
IJmeer, Netherlands

Abstract

Climate change mitigation calls for a transition towards more sustainable energy sources. However, allocating the space for renewable energy technologies like PV systems in complex and dense metropolitan regions is no easy task. This is the case for the IJmeer between Amsterdam and Almere as well. The IJmeer is also an ecosystem under pressure. The objective of this research is to design an energy transition in the IJmeer that aligns with the way that ecosystems change, such as through the process of succession. A method of research through designing is used to come to useful design principles and guidelines.

The use of concepts like succession and ecosystem change was analysed in literature, both in ecology and landscape architecture. This literature analysis was then synthesised into workable design principles. Design principles for ecosystem change and succession include notions of working with non-linearity, indeterminacy and complexity in ecosystems under pressure by humans. A dual analysis was carried out of both large landscape projects as well as an assessment of the ecosystem status for flora and fauna. Technologies and measures for improving ecological quality and renewable energy systems were analysed as well.

A design for the IJmeer was made using a modular approach. Two modules are presented that combine both renewable energy generation as well providing an infrastructure for succession to occur. Multiple stages of succession simultaneously present in these modules allow for more habitat diversity for flora and fauna. The modules performance is based on constant working principles but include variables as well to provide different system responses. The modules variables and composition can adapt to the characteristics of multiple areas of the IJmeer, while also supporting other metropolitan functions like infrastructure and urban expansion while providing renewable energy. The resulting design guidelines were evaluated together with the principles in the conclusion.

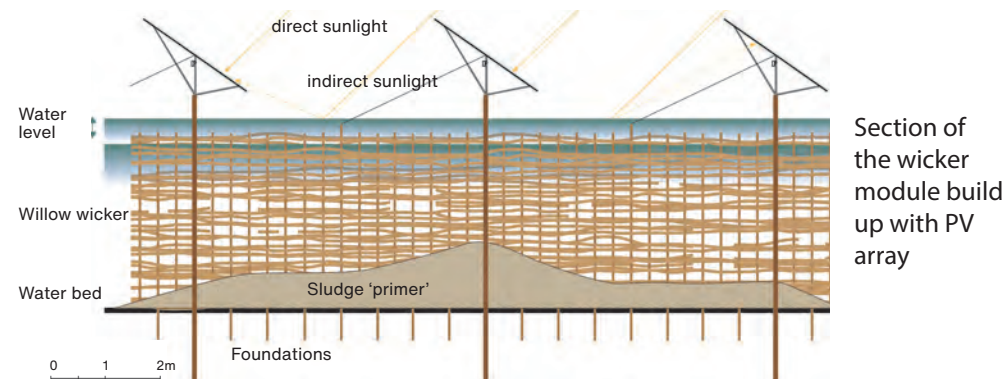


Different stages in the succession process of the wicker module result in different habitats for birds and fish species.

Willow wicker module



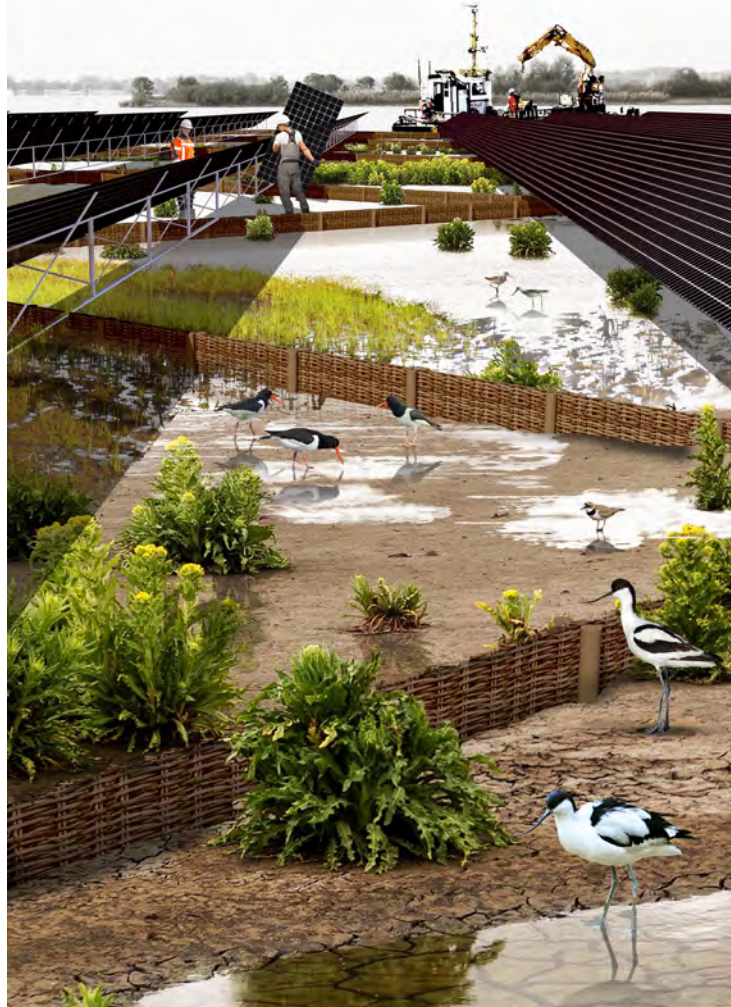
Breakwater module



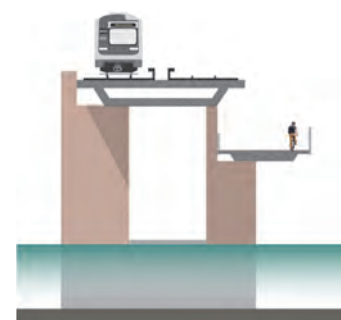
Section of the wicker module build up with PV array



The multiple wicker modules allow space for recreation, habitats for birds and areas for PV arrays

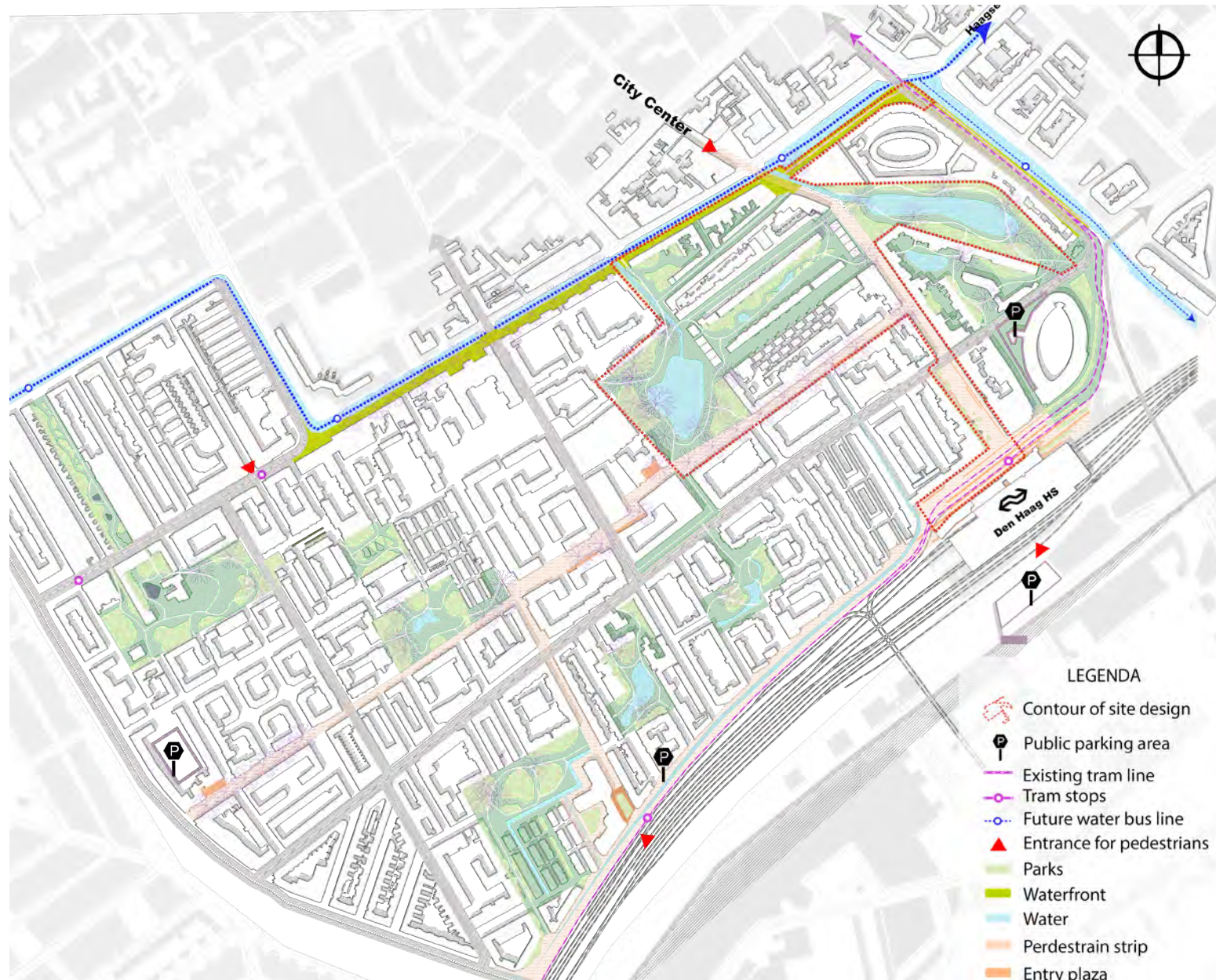


The modules combine into strings of islands and foreshores that slowly turn into land. Three strands of islands are envisioned: one along the Waterland coast, one along the Muiden coast and one right through the middle. The middle strand provides a base for a rail infrastructure causeway and viaduct, as well as an island for recreation and guiding principles for a new urban expansion of Almere.

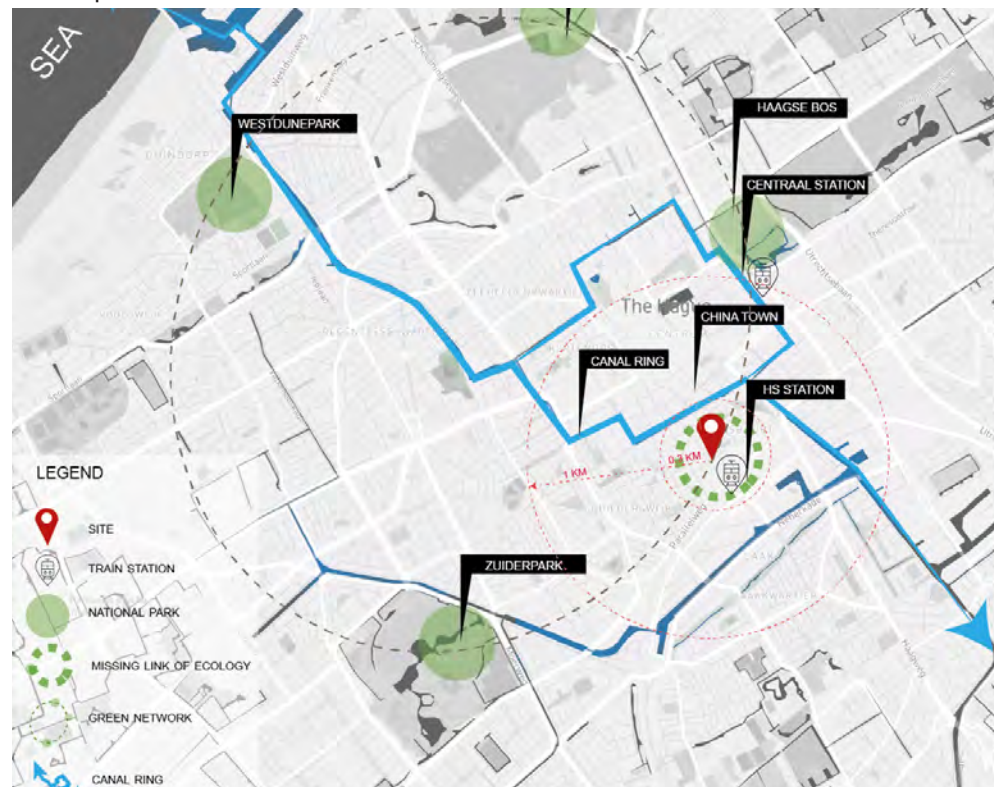


0 10 20m

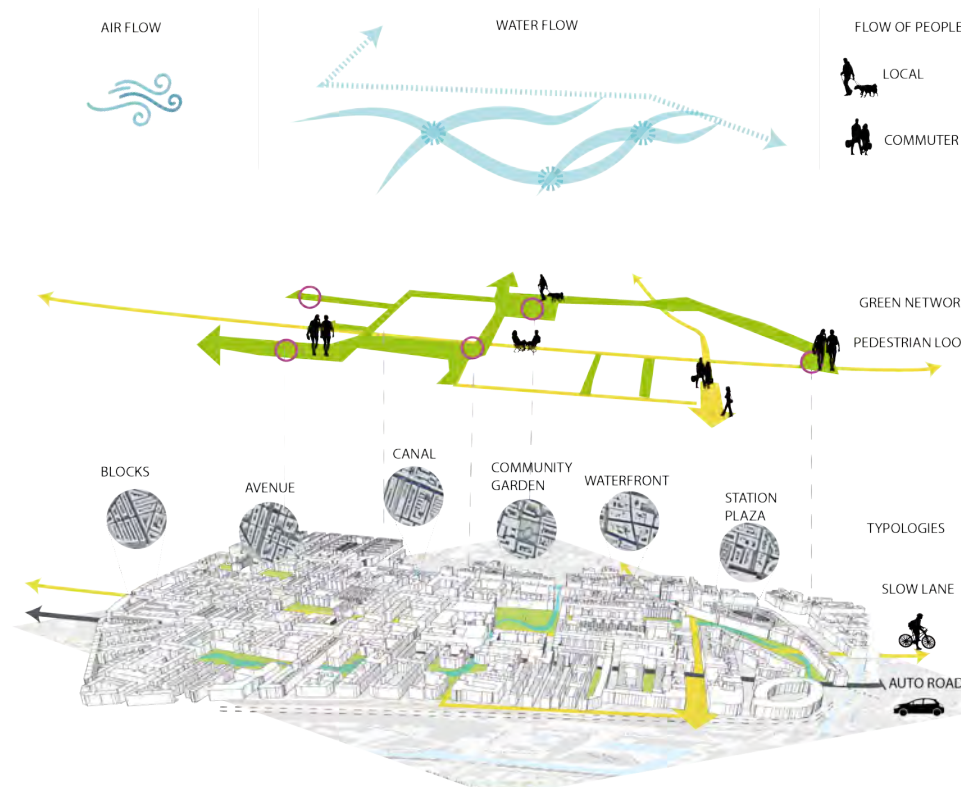




Master plan 1:2000



Regional context



Design layout

Fangyi Zheng

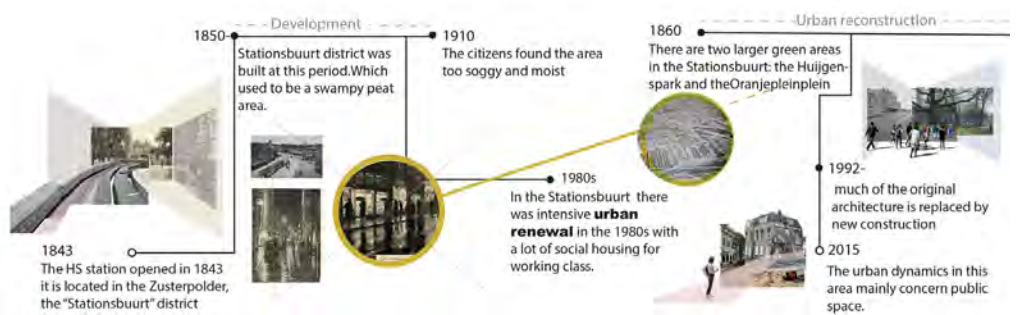
Supervisors: Dr. João Cortesão; Dr.ing. M (Mark) Zandvoort

Green+Blue

Towards a more resilient urban living environment based on a holistic understanding of the nexus among patterns, flows, and functions- a case study in stationsbuurt,NL

Abstract

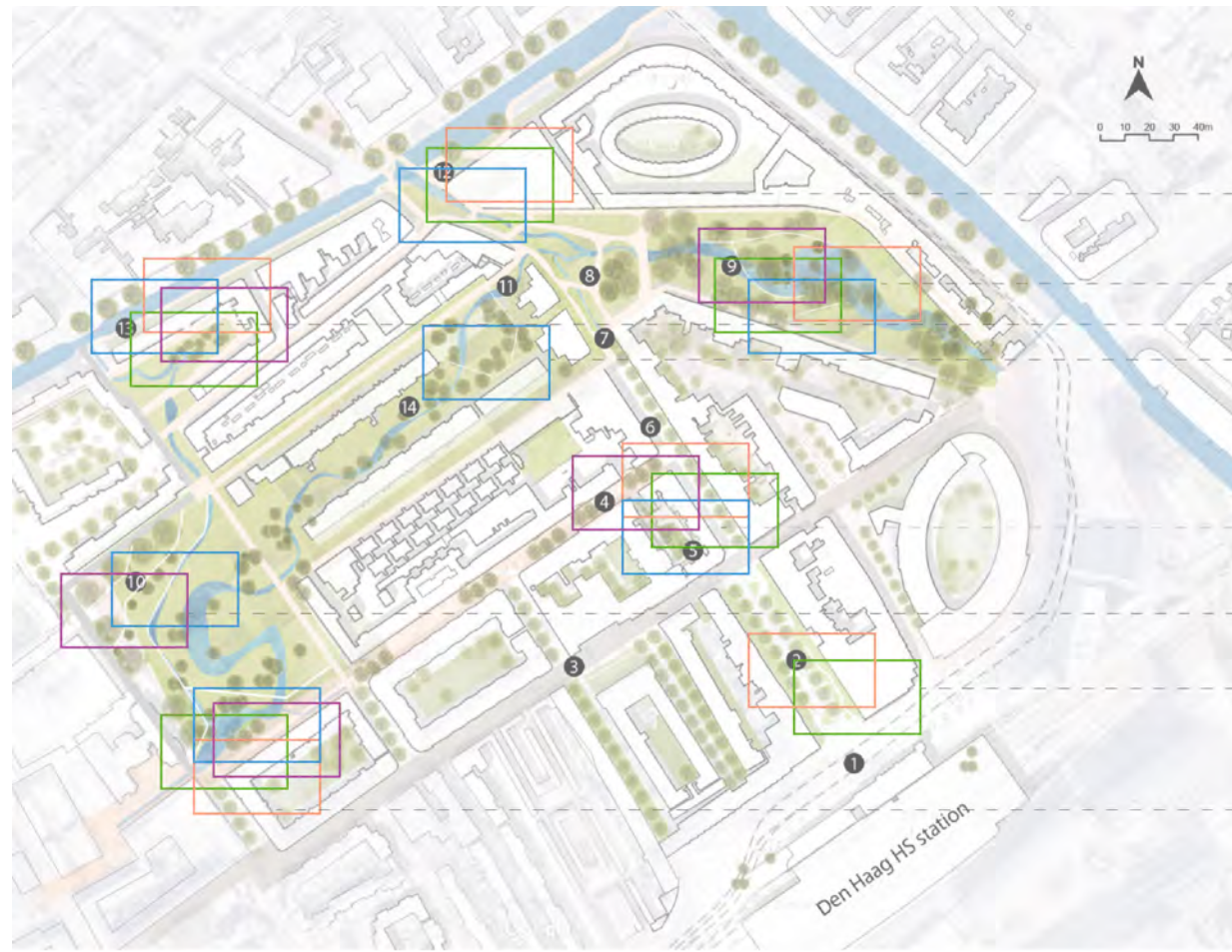
Due to climate change and the uncontrolled urban expansion, more and more cities have suffered increasing natural disasters. Currently, urban development requires a new approach to optimum land deployment, resources distribution, and enhanced functions within a limited space. The urban resilience concept thus meets the need for these adaptations. It is noteworthy that nowadays, many urban planners advocate the urban resilience concept for tackling such issues as urban heat island effect, flooding and habitat destruction. The practice of urban resilience requires not only an in-depth understanding of the landscape but also interdisciplinary knowledge. Nevertheless, the current theory on and practice of landscape architecture focus on assessing the correlation between urbanization and the single pattern or specific functions or individual projects, thus ignoring how those factors relate to each other and the consequences of interactions between those factors. Besides, there is no such common "design language" to interpret the landscape, translate the "urban resilience" concept, and guide urban planners on putting a resilience into practice. The highlight of this thesis is that, consistent with the trend of current study, the flow concept is extracted and attached to with certain importance in the research. In doing so, the tangible and intangible aspects of landscape that make difference to the functions will be analyzed. Besides, the flow concept assists designers in considering how to connect and disconnect different patterns in a more systematic way to achieve the diversity of functions.



Historical overview

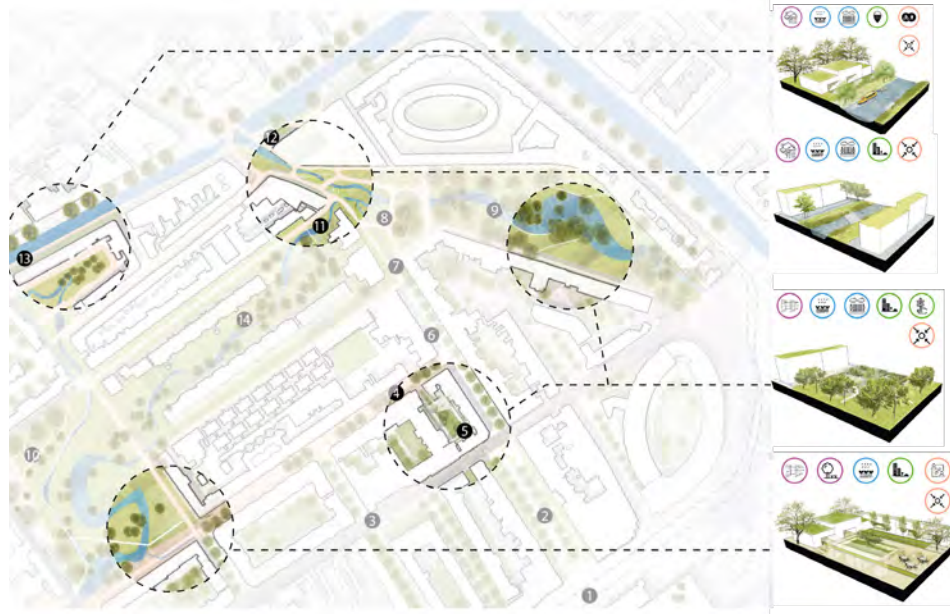


The design principles divided into themes

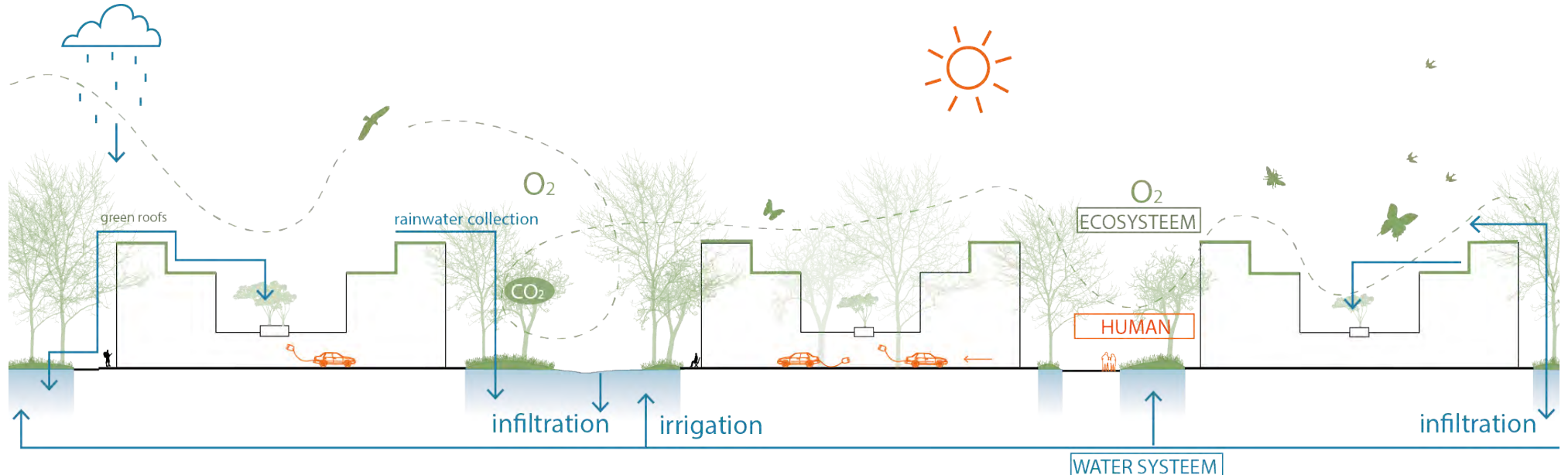


Site design and added values

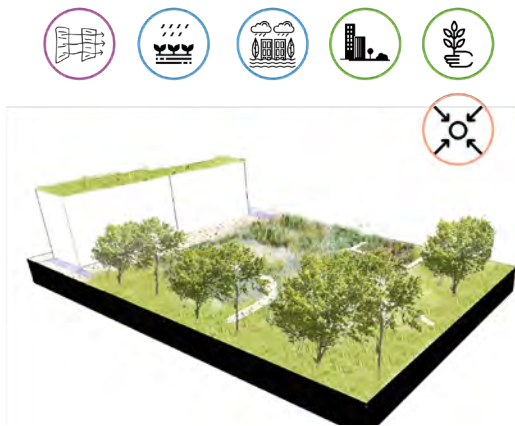
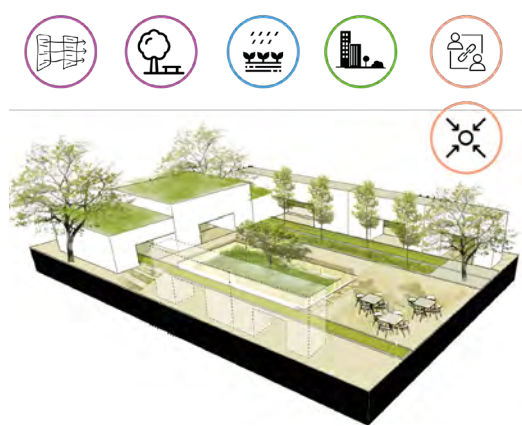
- Heat mitigation**
 - Water resilience**
 - Nature inclusive**
 - Social cohesion**
- Increased permeable surface
 - Conducting water to low risk areas
 - Encourage people to engage with others
- Increased water storage and permeable surface
 - Water is integrated in the landscape
 - A stream in the block that connect parks
 - Easy access to the nature
 - A high value waterfront for residents
 - Natural area with recreational functions
- Decentralized water storage-rainwater garden
 - Increase tree canopy cover on pedestrian areas
 - Diversify street layouts for social activities
- Decentralized water storage-water plaza
 - Implement tree tunnel to improve ventilation
- Increase tree canopy cover on entry plaza
 - Improved public space for social activities
 - Promoting Slow lifestyle, walking and cycling as the preferred modes
- Increased water storage and permeable surface
 - Water is integrated in the landscape
 - Implement tree tunnel to improve ventilation
 - Easy access for pedestrians to green space.
 - Reduce CO₂ emission by creating a car-free zone

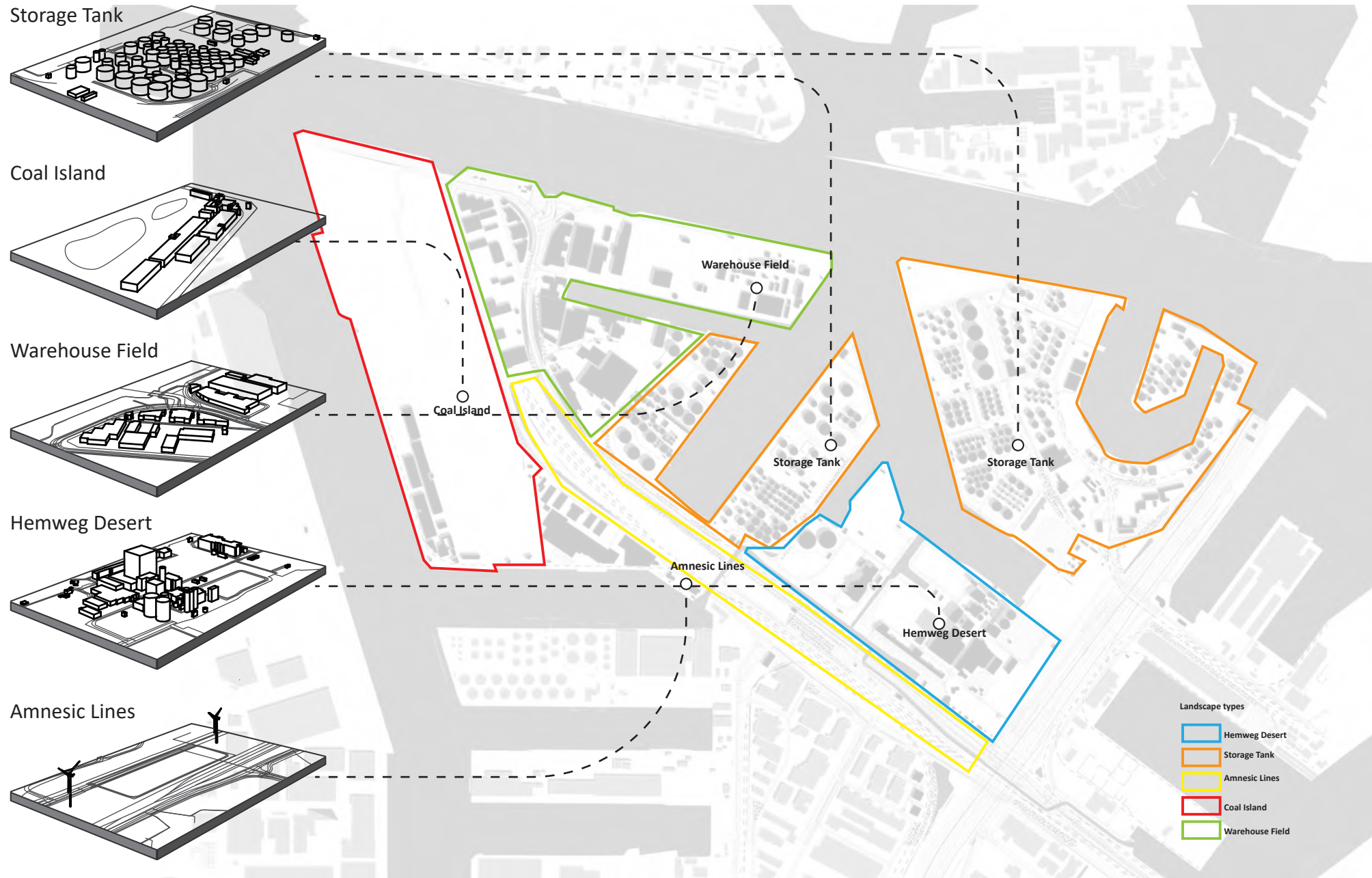


The synthesized design principles applied in site design



Design concept-fluid landscape





Yifan Zhang

Dr.ing. S (Sven) Stremke and Dr. Paolo Picchi (Academy of Architecture - Amsterdam University of the Arts)

Illuminating The Blind Field

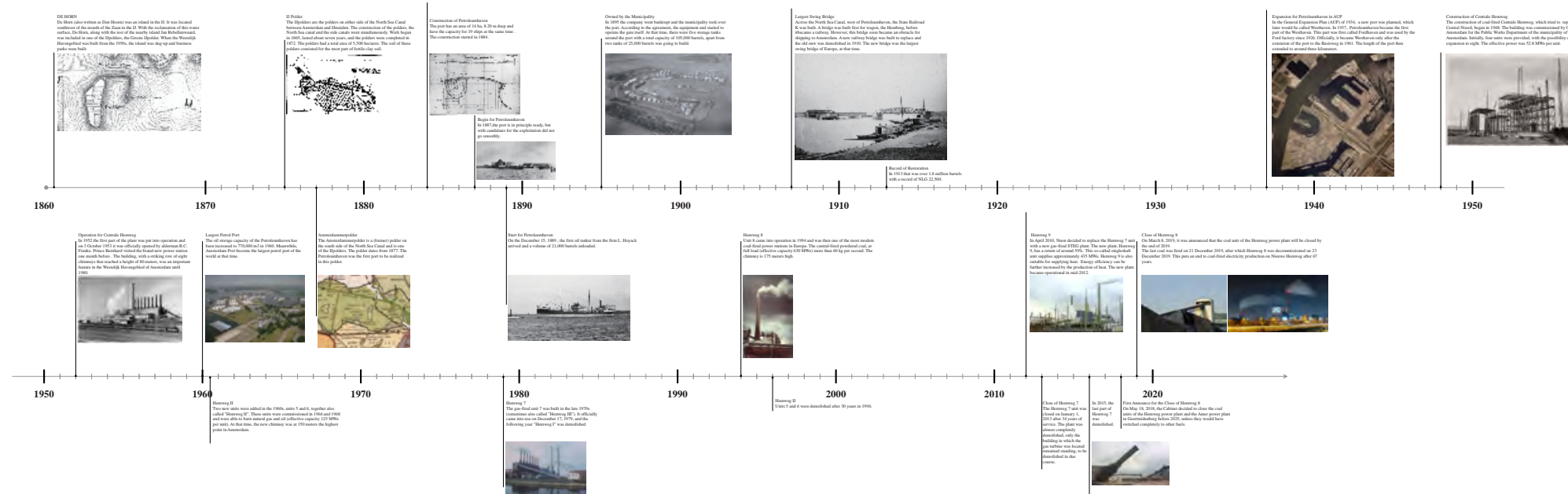
landscape Infrastructure as intervention: Guideline for a sustainable energy landscape in dynamic urban territory Amsterdam, The Netherlands

Abstract

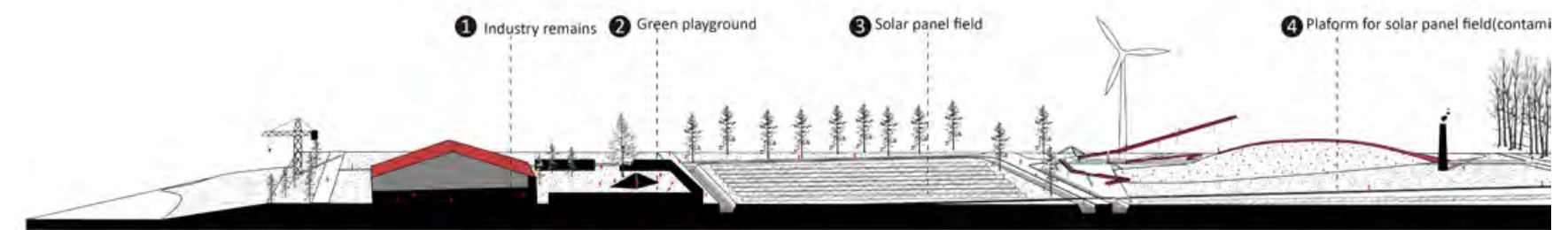
In the last decades, climate change has been exerting a great influence on the Earth, especially in urban regions. The extreme weather events triggered by climate change lead to a series of problems for city engineering. Furthermore, the majority of anthropogenic greenhouse gases contributing to climate change are emitted from cities. Thus, cities need to take responsibility during the transition towards sustainable energy, reducing their emissions and improving their living standards. The aim of this thesis is to investigate how to achieve the transition towards sustainable energy and to install renewable energy infrastructure in urban territory.

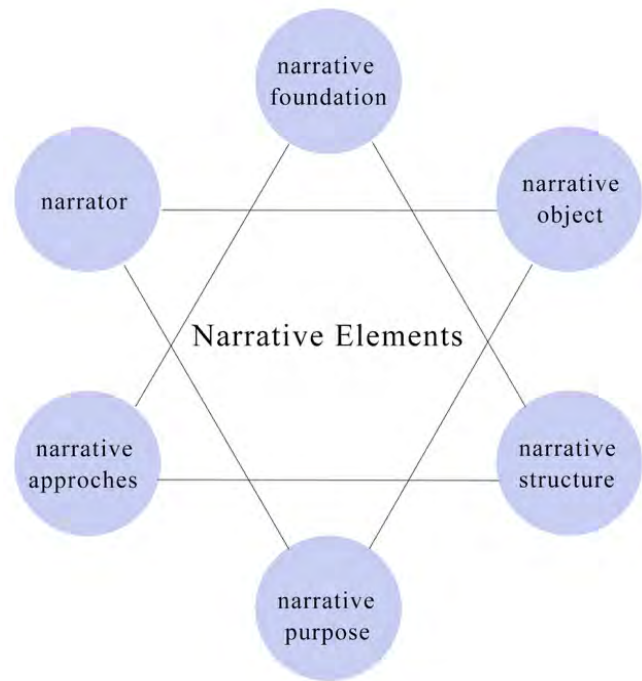
The main research question of this thesis is: What is the potential of renewable energy infrastructure to be multifunctional during the transition towards sustainable energy in the Amsterdammerpolder area? It was addressed in three steps. Firstly, document analysis helped to understand the narrative of the desirable transition for the Amsterdammerpolder area as a city region. Secondly, the landscape types inside the Amsterdammerpolder area that are suitable for the installation of renewable energy infrastructure were identified. For each landscape type, a future was envisioned where their characteristics are conserved and redeveloped, while at the same time engaging in the installation of renewable energy infrastructure. Lastly, one landscape type was chosen and designed to achieve sustainable transition.

History development line



RENEWABLE ENERGY
IN
URBAN TERRITORY





landscape narrative elements

narratives in industrial factory



Natural environment problems from site to city center

Lan Yu

Dr.ir. PA (Paul) Roncken

FROM TUBE FACTORY TO NARRATIVE IDENTITY

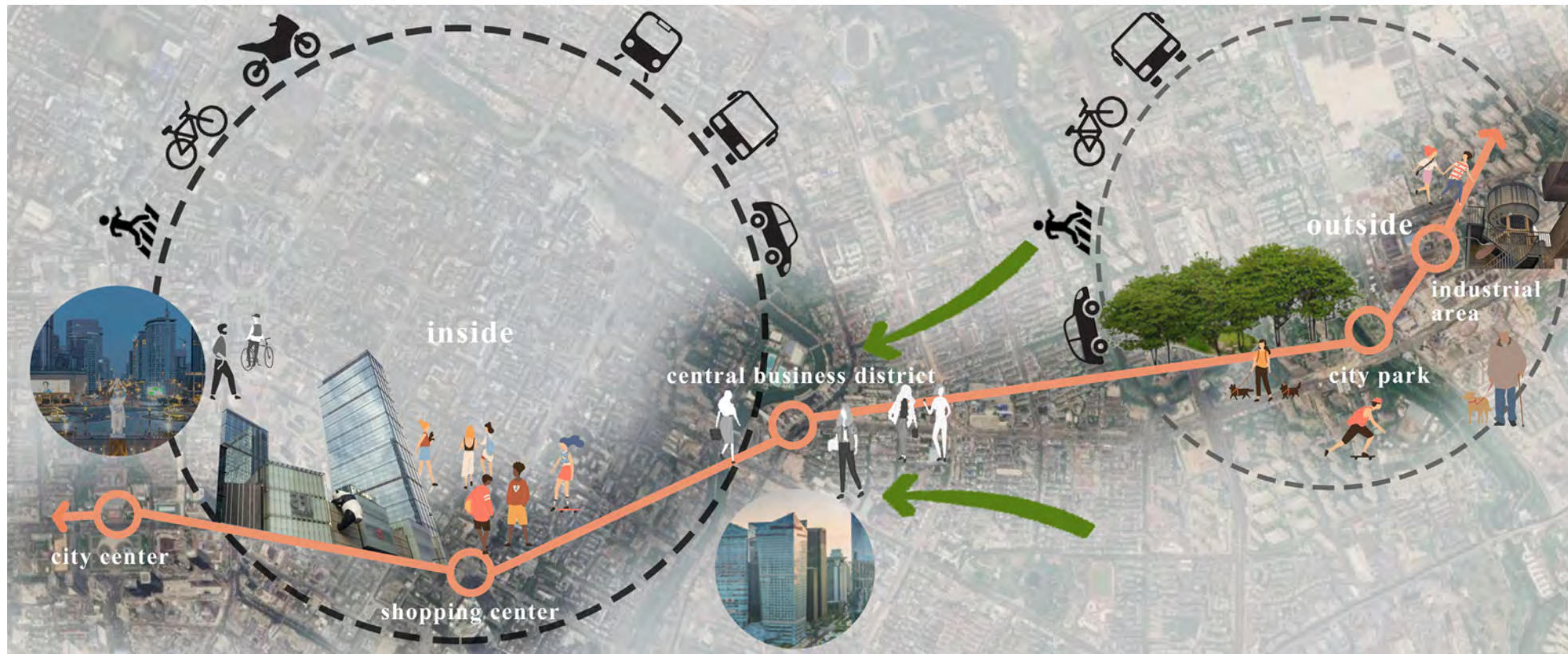
Tao design inspirations for the Hong Guang Electronic Tube Factory of Chengdu

Abstract

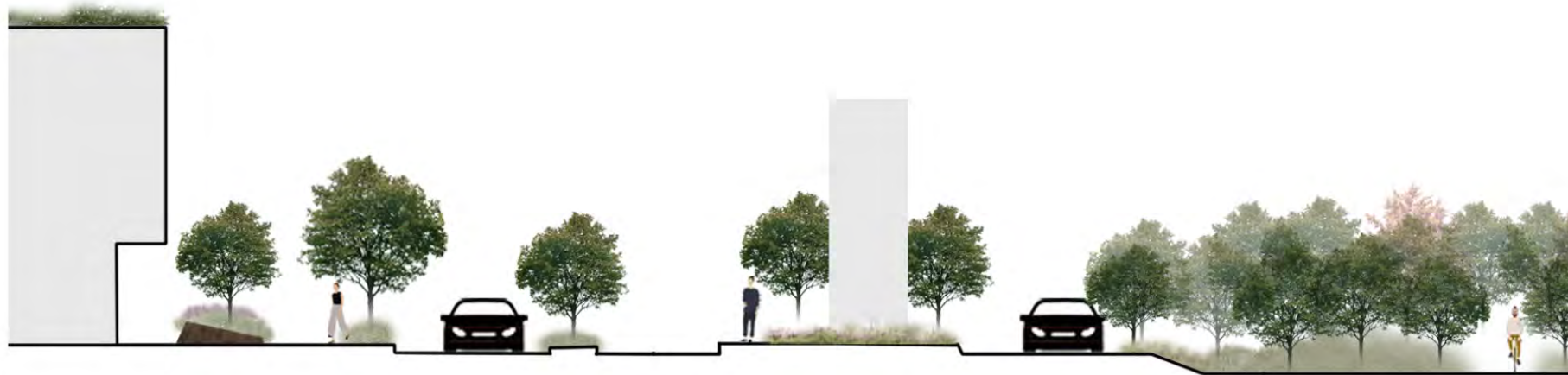
Industrial heritage is not only the embodiment of industrial culture, but also the continuation of urban cultural background. The transformation of industrial heritage means to be harmonious and integrated with the city, also to complete the city's functions. However, due to the development of urbanization, much industrial heritage in the past have been replaced by modern urban development, and gradually disappeared. Industrial culture cannot be protected enough, so that people gradually forget the previous industrial history. In China, industrial heritage is not developed and protected as early as western countries, so many industrial sites have been transformed into public spaces for other purposes.

In my minor thesis, it stated the different design methods for protecting and renovating cultural heritage in China and Western countries. Among them, the Chinese Taoist culture has a profound impact on the protection of cultural heritage. Harmony and integration is the influence of Taoist culture on landscape design.

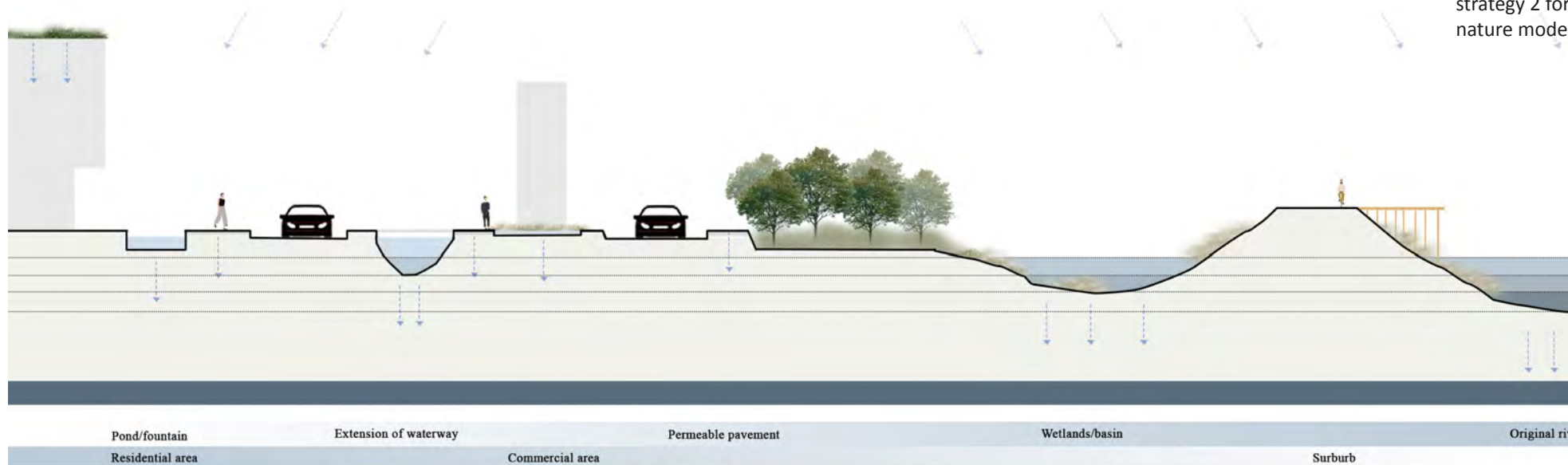
In the process of urban development, the Hongguang Electronic Tube Factory was planned as a musical and cultural park by the government, which lacks the protection of industrial heritage and the characteristics of industrial culture. Therefore, in this thesis, the mainly studies is how to transform the industrial heritage of Hongguang Electronic Tube Factory into an industrial park with strong industrial theme, which could be integrated into the city, protecting the industrial site and creating an open space for recreation, application, entertainment, science and education Also, it would provide a multi-layered landscape experience, and integrate into the whole city as well.



Chengdu development plan



Urban pocket park Residential area
Road greening Commercial area
Urban Plaza
Forest Park network



Pond/fountain Residential area
Extension of waterway Commercial area
Permeable pavement
Wetlands/basin Suburb
Original river



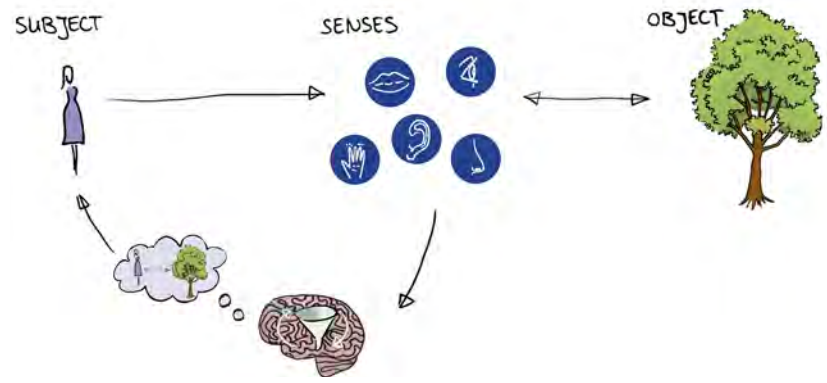
Surroundings

Pedestrian route

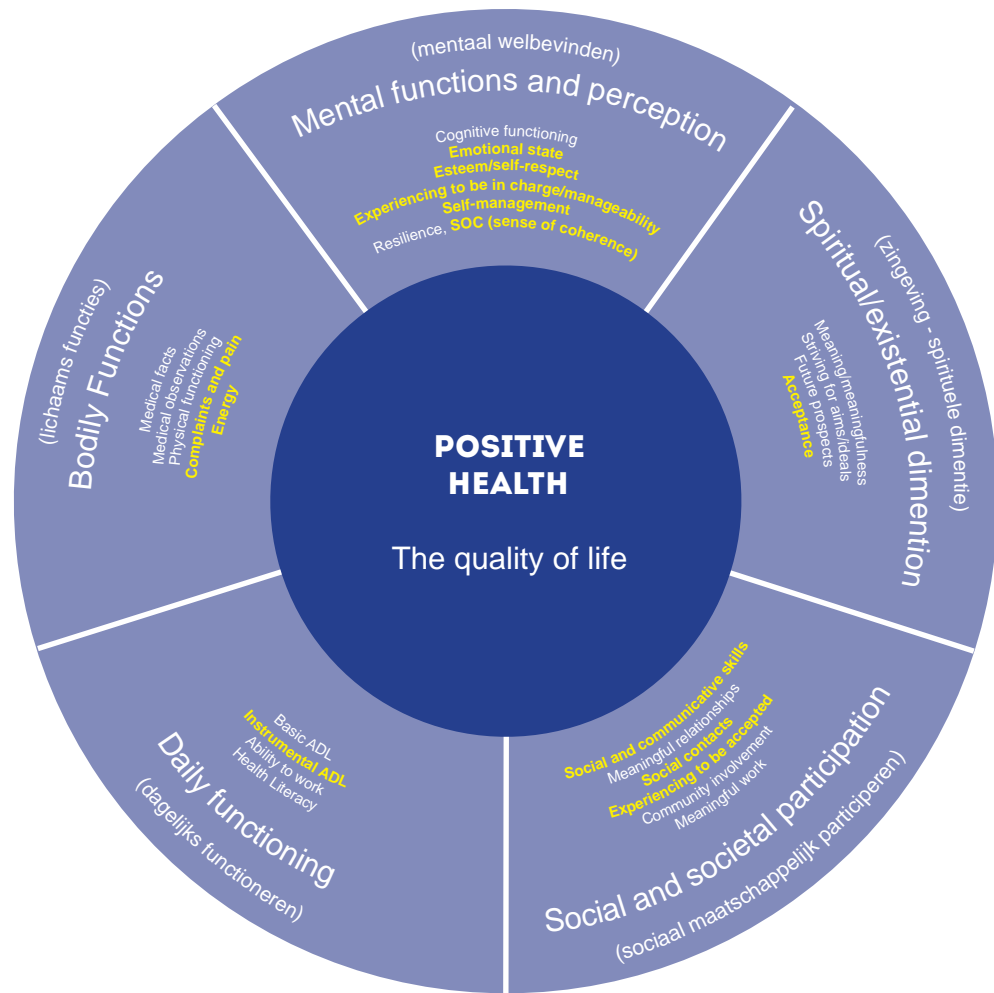
Bicycle route

Car route

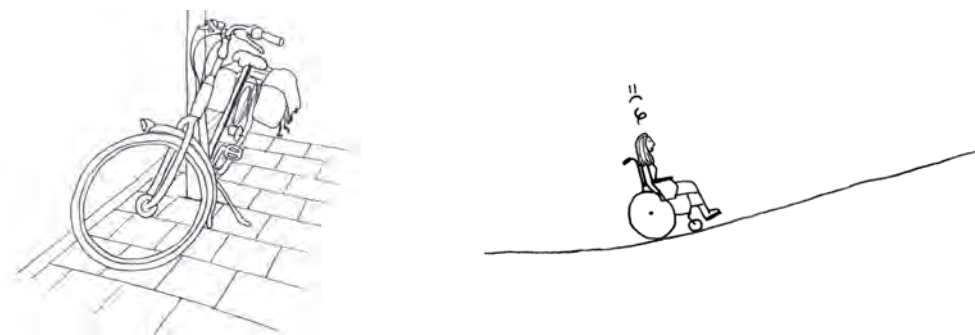
Bus route



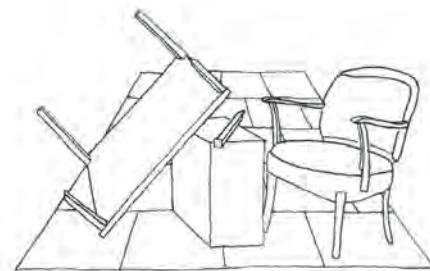
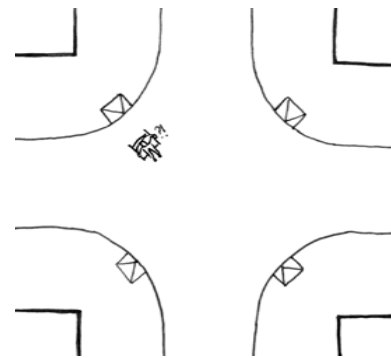
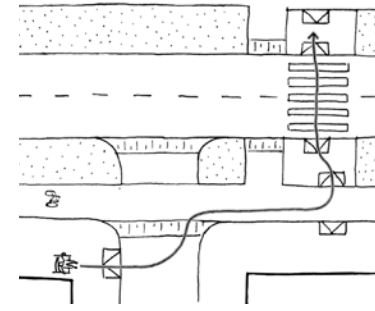
Schematic explanation of phenomenology that shows the importance of understanding the sensory experience of the landscape.



The negative impact of the configuration of the urban public space on the Positive Health of a person bound to a wheelchair highlighted in yellow.



Some of the problems encountered when rolling through the Tarwewijk in a wheelchair



Marieke Oostveen

Name supervisors: Sjoerd Brandsma and Rudi van Etteger

Rotterdam: ready to roll?

A phenomenological research about wheelchair accessibility in urban districts - the Tarwewijk

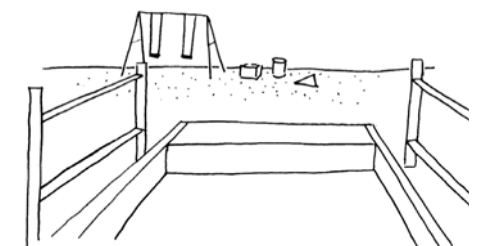
Abstract

Navigating in urban open spaces is still a challenging task for people in a wheelchair. Wheelchair bound people go less outside because of the way the public open space of their direct living environment is shaped. There are guidelines for wheelchair accessibility, however they appear not to be sufficient. This research focuses on the impact of the direct living environment in urban districts on people in a wheelchair. The case study for this research is the Tarwewijk in Rotterdam.

The concept of phenomenology formed the basis of the method 'phenomenological rolls', in which the focus lies on first hand experiencing the multisensory and emotional impact of the public open space while rolling in a wheelchair through the Tarwewijk. The experience is recorded with video and in written text. The senses and feelings formed the basis of a directed content analysis and resulted in an overview of the problems encountered shown in text, drawing and video. The evaluation on the impact on positive health of people in a wheelchair shows that the frequency and multi-sensory problems that people in a wheelchair encounter have a big impact on the perceived positive health.

A semi-structured interview at the municipality of Rotterdam shows what problems and opportunities the municipality encounters when trying to make urban districts wheelchair accessible.

The outcomes of the phenomenological rolls and interview serve as a basis for the research through design process in which a design strategy to improve the wheelchair accessibility in the Tarwewijk was formed. Plus Routes on which later the other streets can be connected when the opportunity arrives form the basis of this strategy. Cars get a less dominant place and slow infrastructure gets a higher priority. To conclude the outcomes of the research in the Tarwewijk are evaluated to determine how the generated knowledge can be used in other urban districts.



Step 1: Create Plus Routes



Design strategy

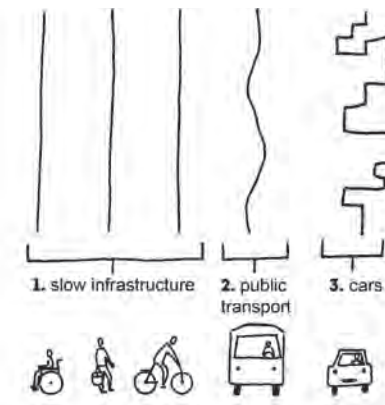
Step 2: Connect other streets



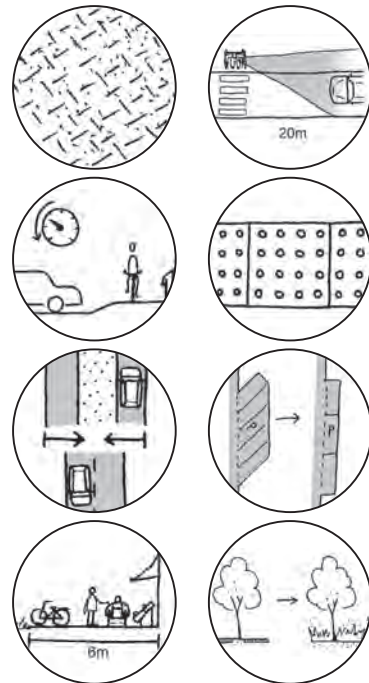
Step 3: Improve public transport



The only way to achieve accessible urban districts is by giving a higher priority to slow infrastructure, improve the public transport system and discourage car usage. This can also be seen in all the design details. Moreover, designers need to be educated on how to integrate wheelchair accessibility into designs. Interested? Scan the QR-code to see the movie fragments from the phenomenological rolls and look up the report.



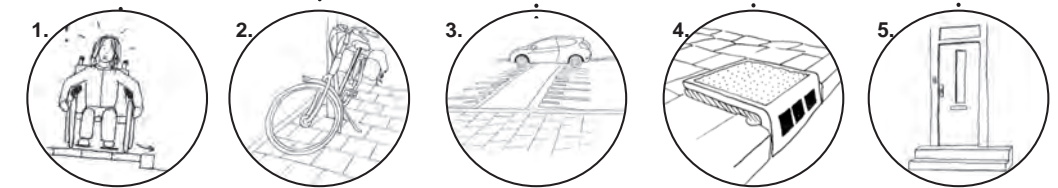
Design detail step 1: Crossing Dordtselaan
Maximum design and design guidelines that improves the wheelchair accessibility of the crossing and turns it into a place to stay.



Design detail step 2: Heenvlietstraat 12m
Street analysis wheelchair accessibility based on the problems encountered during the phenomenological rolls.

Three designs to improve the wheelchair accessibility: a minimum, medium and a maximum intervention.

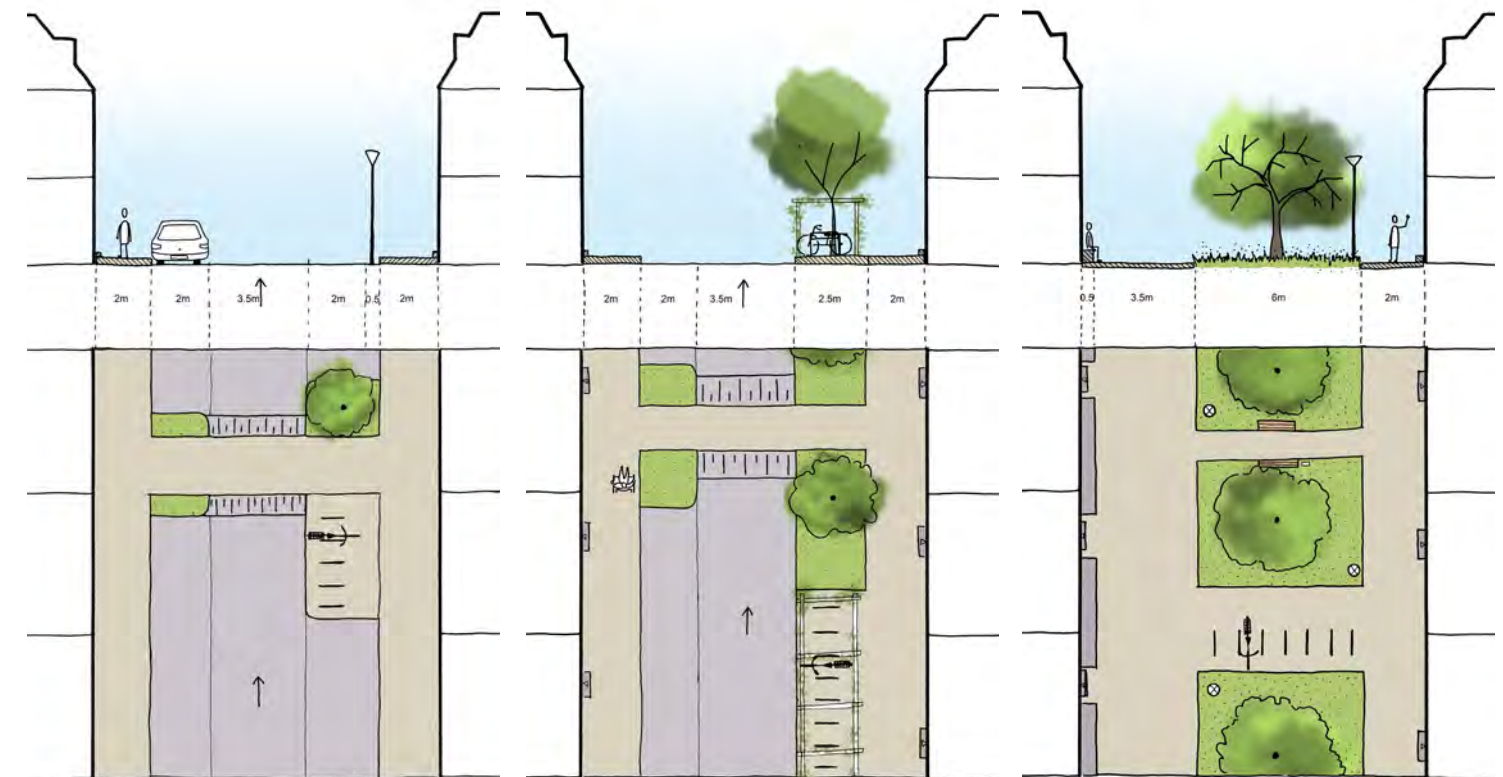
The designs can be used as a tool to start the discussion about designing more (wheelchair) inclusive.



Minimal

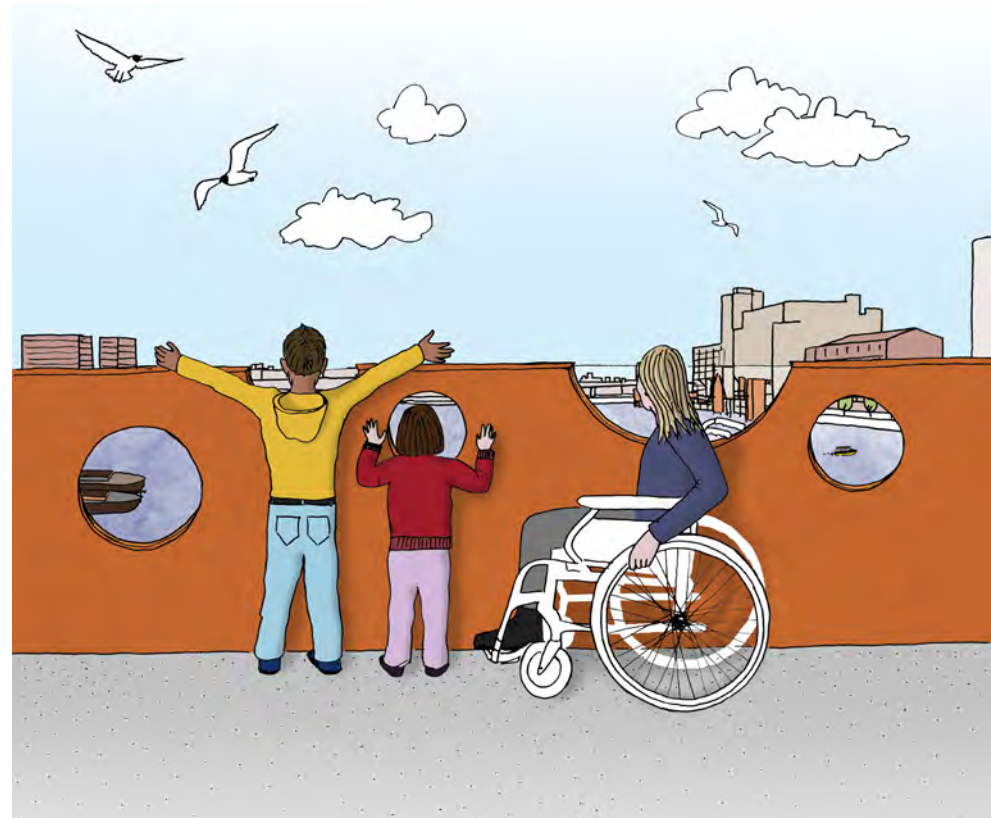
Medium

Maximum



Design detail step 1: Bridge Maashaven

The visual shows the view from the slow infrastructure bridge over the Maashaven. It illustrates that there lie chances of combining the needs of people in a wheelchair with the needs of children by making the city safer and more interesting on their eye-level.












Master plan 1:5000

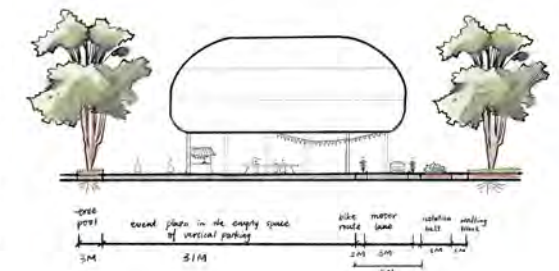
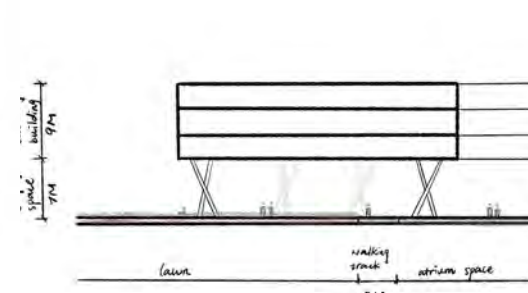
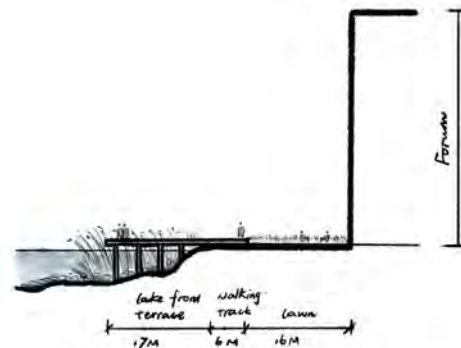
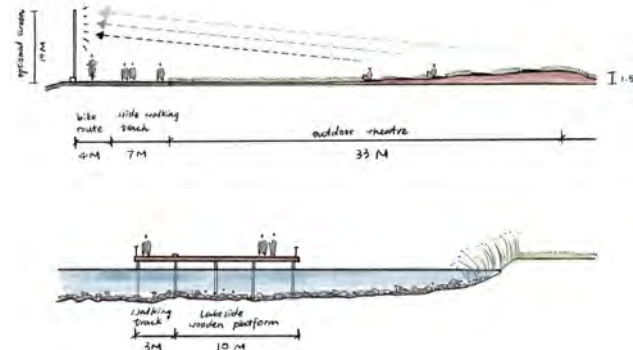
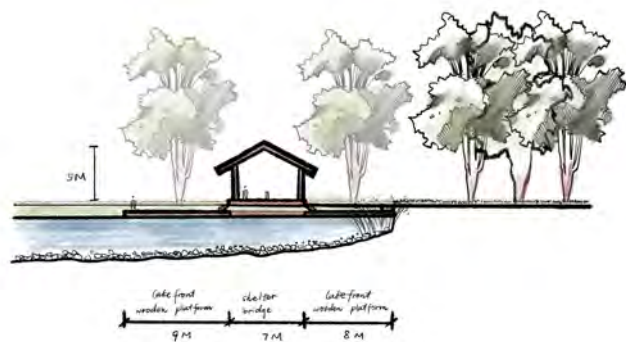
Use a walking track that connects the entrance to the WUR campus, the most important buildings, important landscape nodes, and public event spaces where exciting events occur, enriching the pedestrian's outdoor landscape experience, making it more attractive to the Chinese group; The accessibility of the landscape is more substantial, making the campus more integrated.



- ① original farmland landscape
- ② back garden
- ③ events zone
- ④ front plaza
- ⑤ outdoor theater
- ⑥ woodland studio
- ⑦ vertical circulation parking equipment
- ⑧ warehouse and greenhouse

-  wooden bridge with roof
-  lakeside wooden terrace
-  set of benches
-  screen of outdoor theater
-  gravel pavement squares
-  wood boardwalk through farmland
-  glass-bottomed skywalk above farmland
-  event plaza in the empty space of vertical parking
-  studio units in the forest

diverse landscape experience



Name student: Mengli Zhou

Name supervisors: Sjoerd Brandsma

Internationalized campus landscape

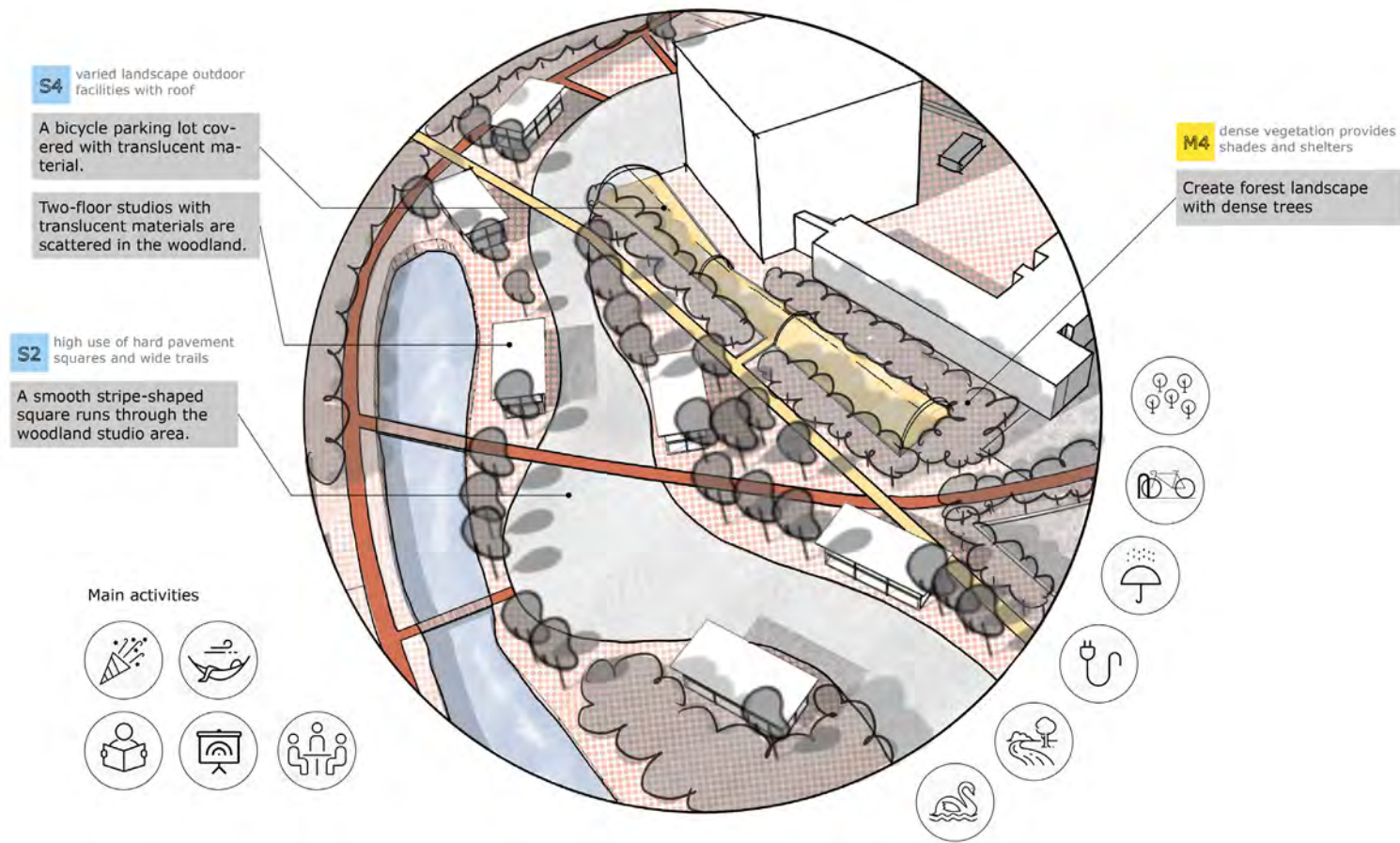
By transforming Wageningen University into a campus landscape suitable for international user groups led by the Chinese community, explore the principles of campus landscape design in a multicultural context.

Abstract

Internationalized universities have become a social trend due to the continuous active flow of talents in the context of globalization. An internationalized university's campus landscape needs to meet the essential functions of assisted learning and stress relief, as well as the integration of multiple cultural backgrounds. Through observation and survey analysis, Wageningen University (WUR) does not provide a suitable campus landscape for students with different cultural backgrounds (especially the Chinese group, which accounts for the most significant international students). It will hinder the exchange of students' opinions and the release of pressure. Therefore, this thesis uses the current WUR campus as a research area to explore the design principles of an internationalized campus landscape.

The current situation of the WUR campus landscape, non-Chinese and Chinese user groups' using and their demands of campus landscape are collected through literature research, filming, observation, landscape analysis, and survey methods. Second, the five most popular Chinese university campuses were analyzed as cases, and fourteen common qualities and twenty-three design principles of the most representative university campus landscapes in China were obtained. Then these design principles are used as preliminary design principles and applied in the transformation design of the WUR campus landscape to conduct a campus landscape that meets the needs of Chinese and non-Chinese groups. In the end, fifteen focus group members evaluated the preliminary internationalized campus design principles through online scoring. In conclusion, the effectiveness of the design principles that can help design an internationalized campus landscape for the Chinese community is summarized, divided into three categories: Four of the 23 Chinese campus design principles are more restricted in application; Eight are universal design principles; Eleven are design principles recommended by more than half of the respondents.

Site design - woodland studio



Site design - northern farmland area

