



Beyond Growth

A spatial exploration of a degrowth future for the
Metropolitan Region of Amsterdam

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FRAME
the problem

TRANSLATE
degrowth theory for spatial
application

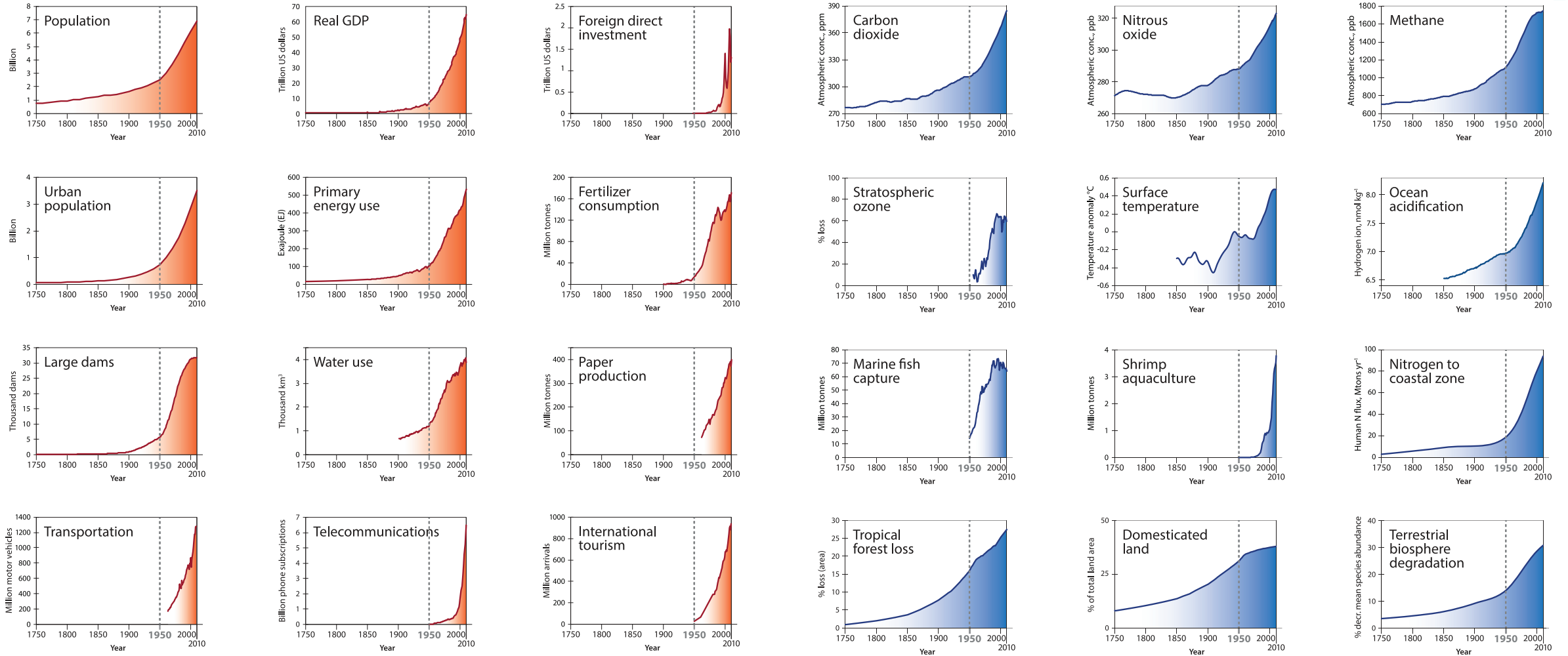
UNDERSTAND
the growth paradigm in space

EXPLORE
spatial design for degrowth

STRUCTURE
possible interventions

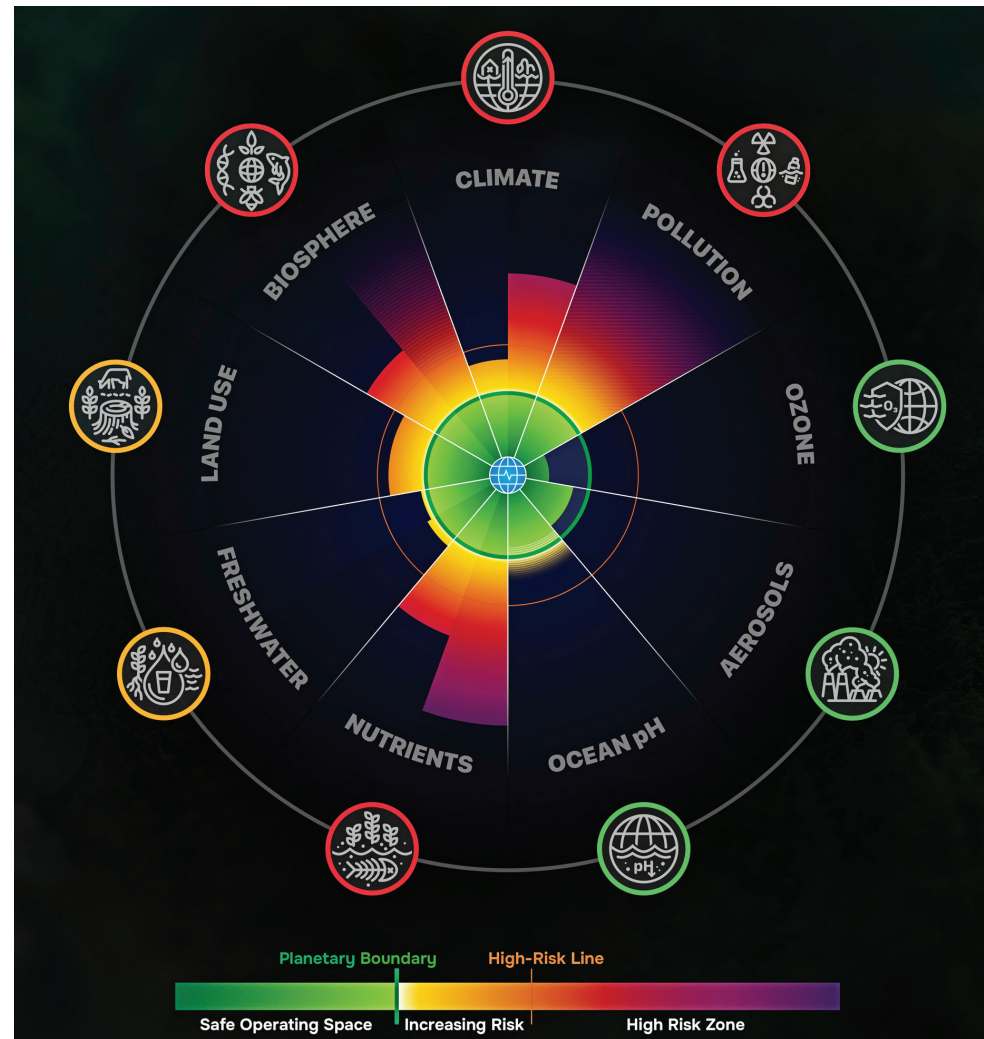
CONCLUDE
the findings

Boundary overshoot



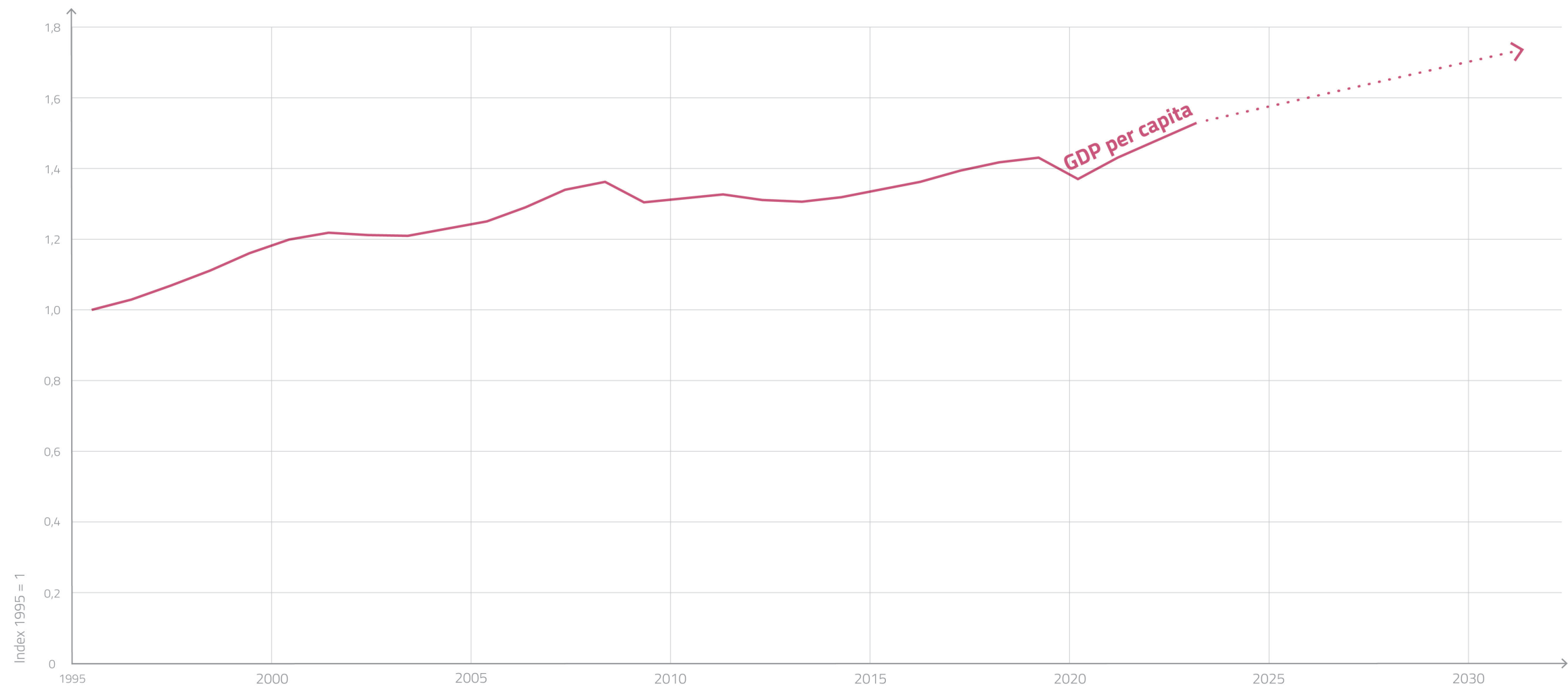
Source: Steffen et al., 2015

Boundary overshoot



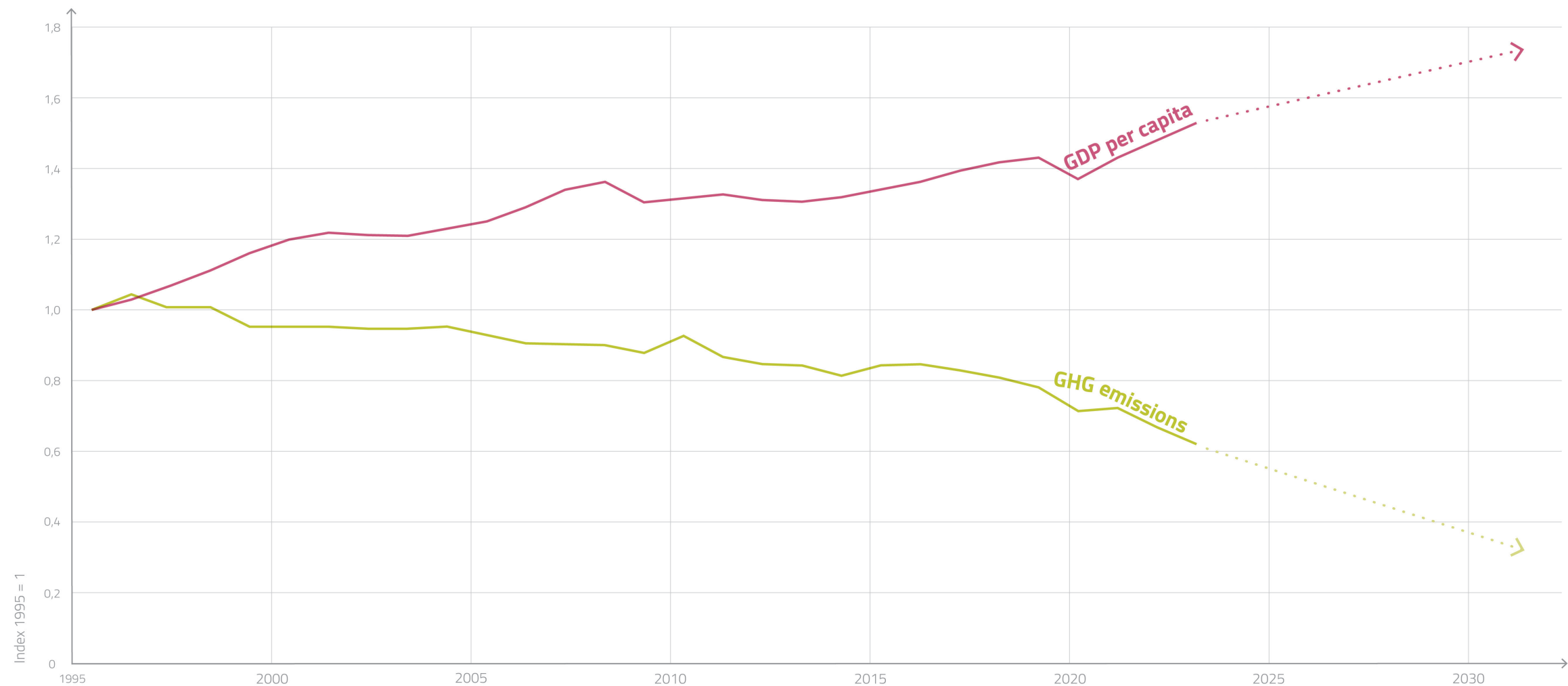
Source: Caesar et al. 2024

Endless green growth in NL?



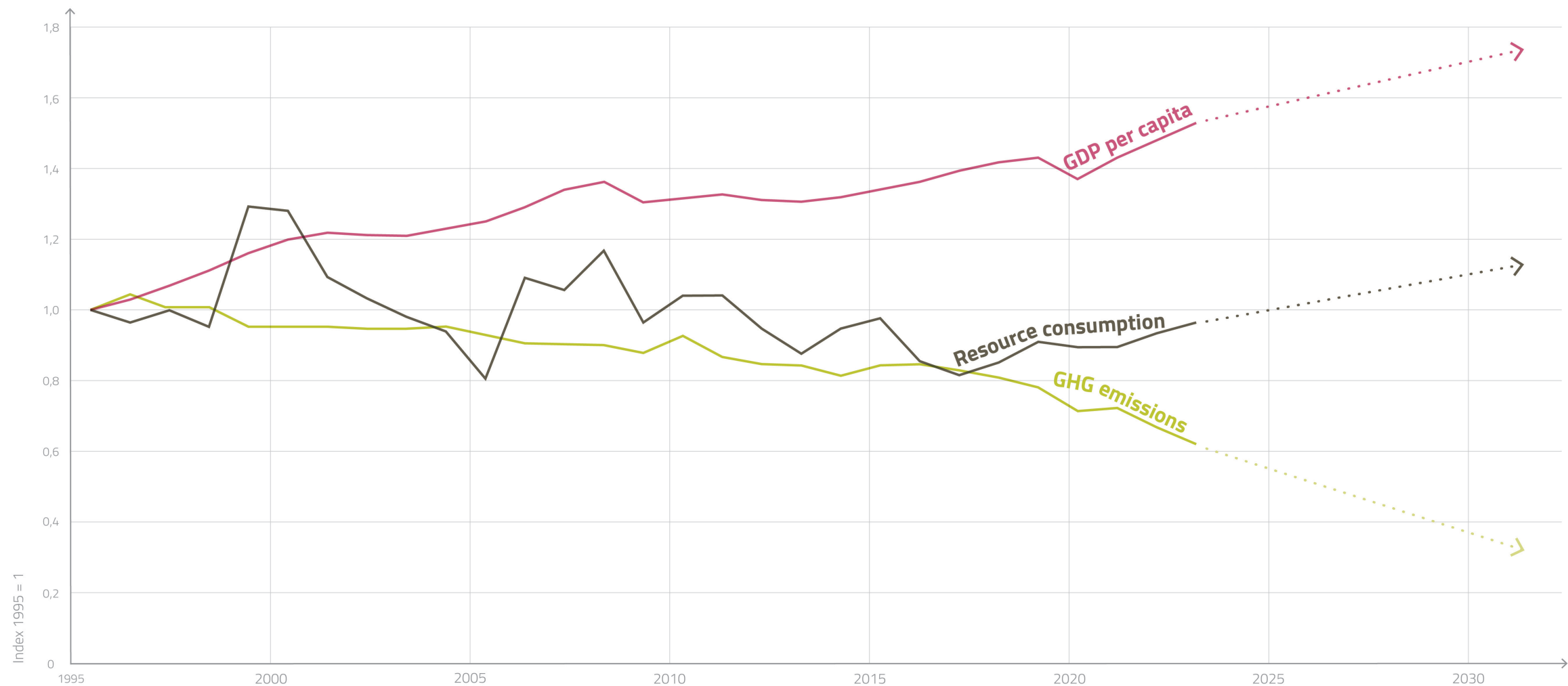
Sources: Data based on CBS, 2024a, 2024b, 2024d, 2021; UNEP IRP, 2024: Philips et al., 2021; Trends estimated based on Bruyninckx et al., 2024; CBS, 2024c; Centraal Planbureau, 2024

Endless green growth in NL?



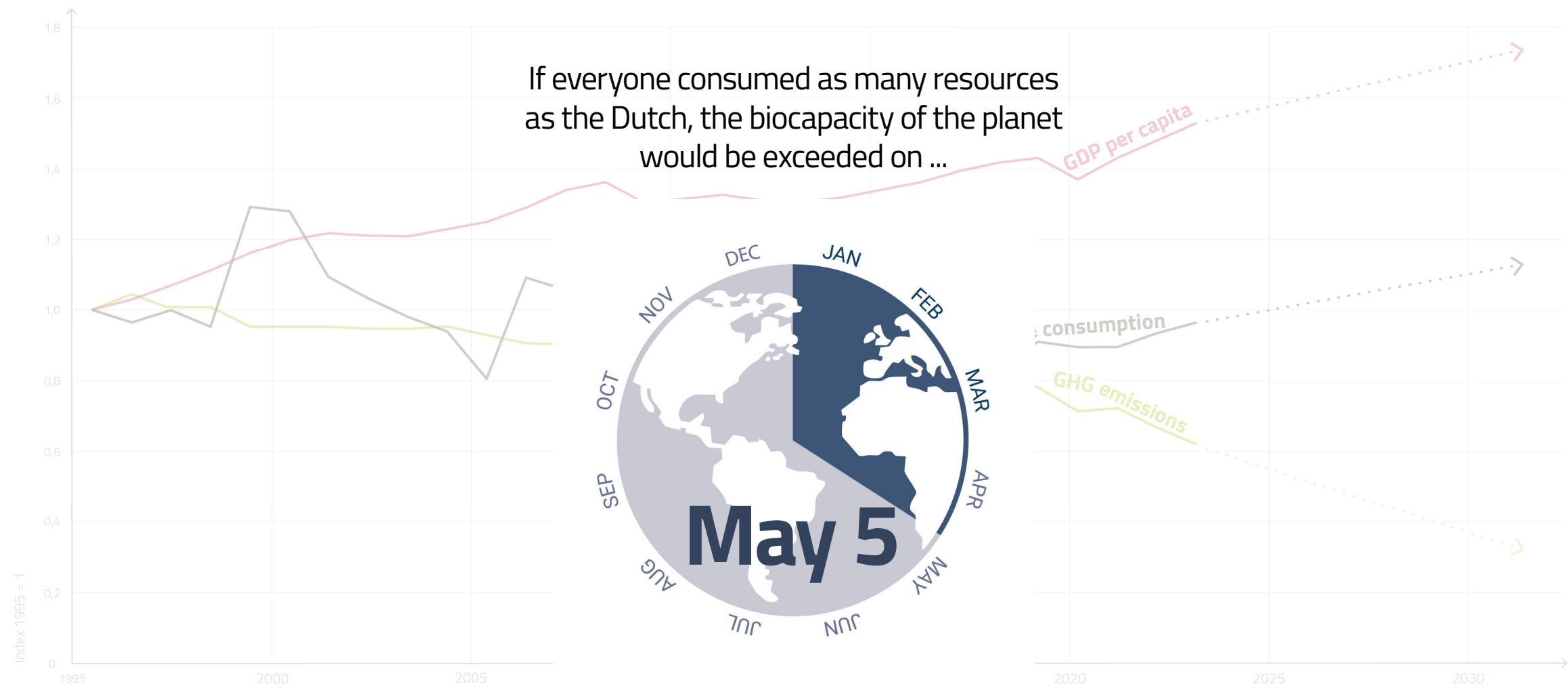
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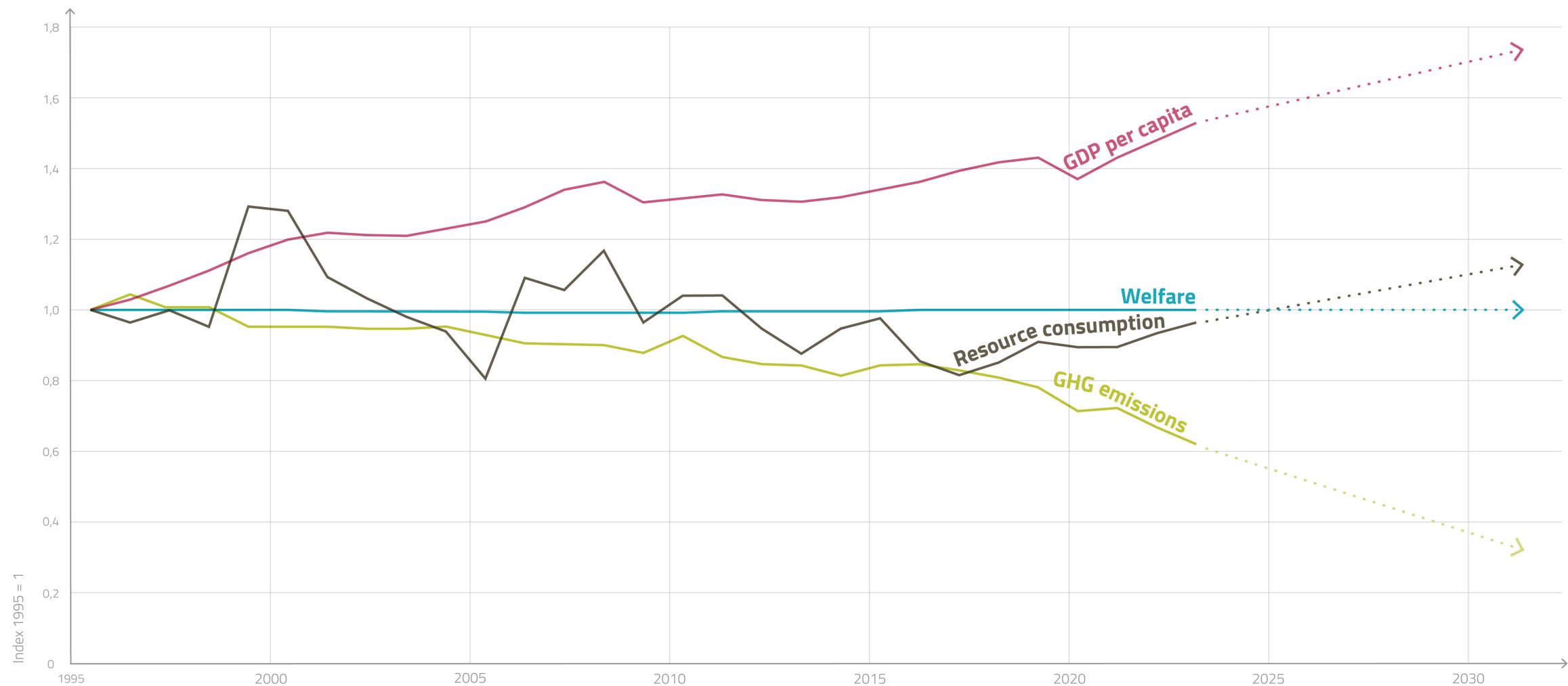
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The PACE of growth is too high



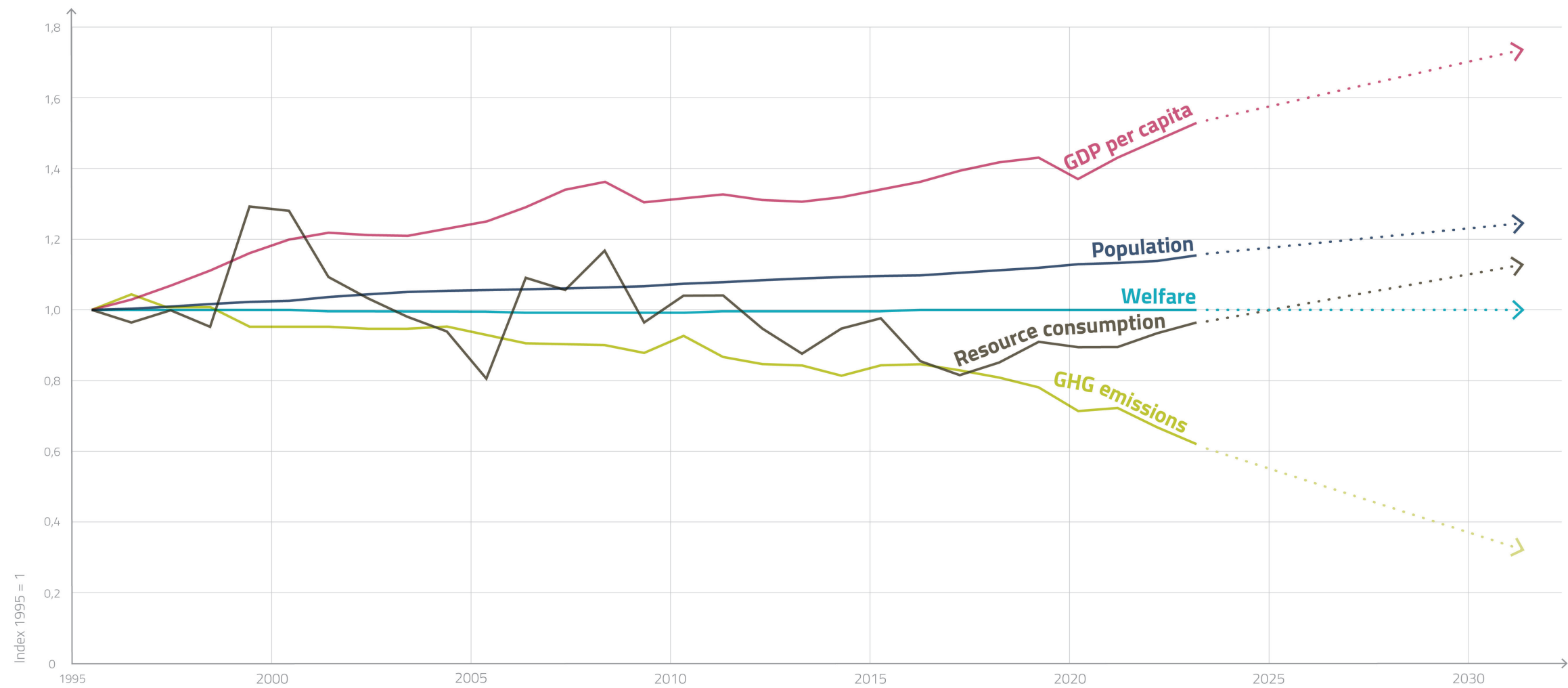
Source: own work, based on: Global Footprint Network, 2025

Endless green growth in NL?



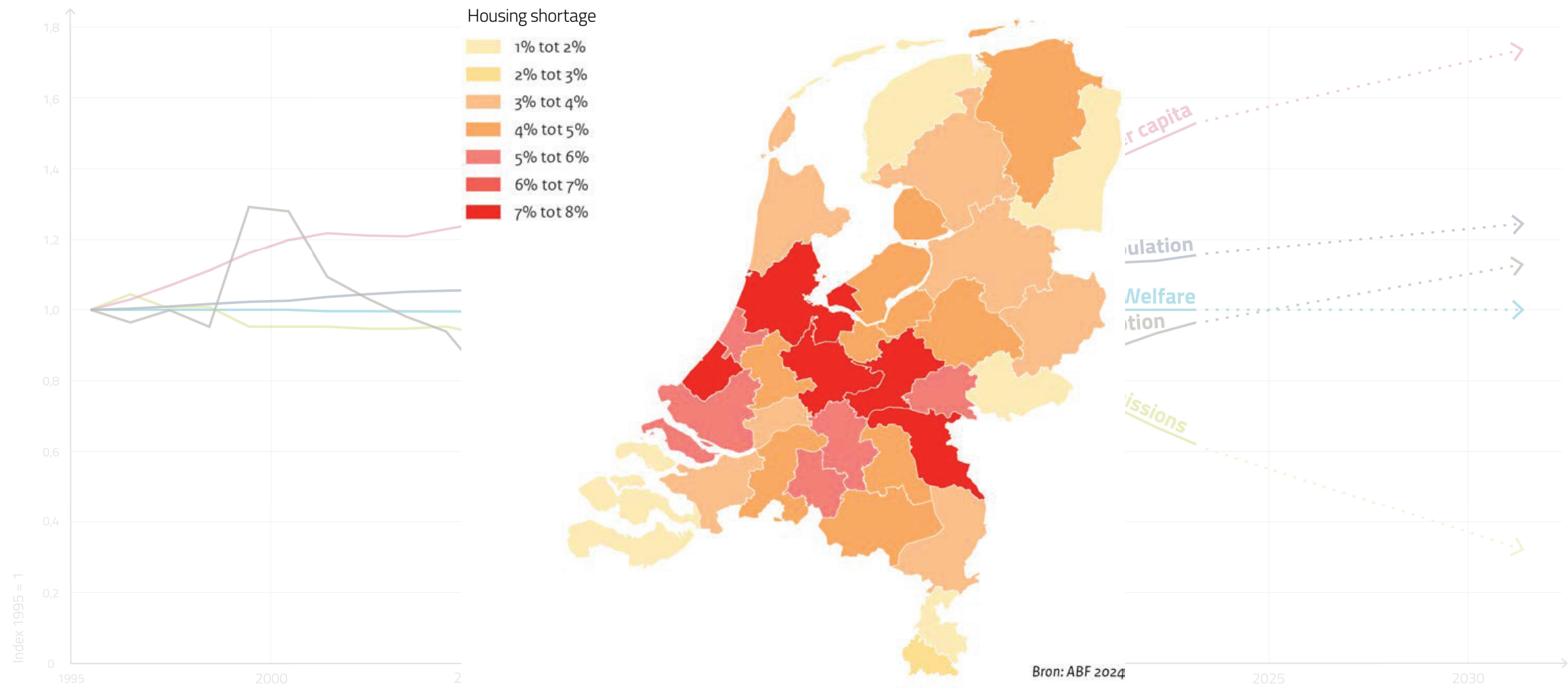
Sources: Data based on CBS, 2024a, 2024b, 2024d, 2021; UNEP IRP, 2024: Philips et al., 2021; Trends estimated based on Bruyninckx et al., 2024; CBS, 2024c; Centraal Planbureau, 2024

How successful is green growth?



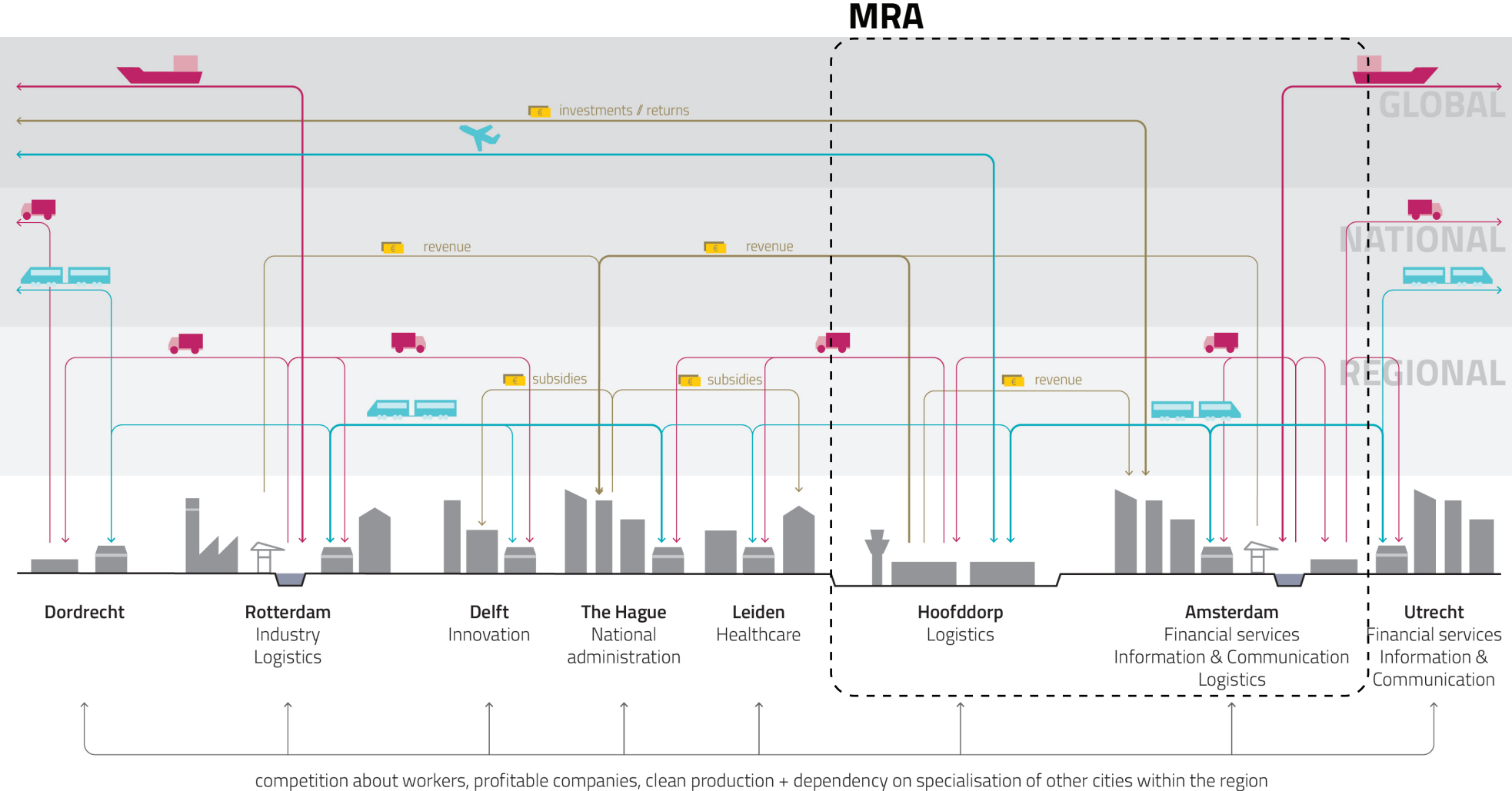
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The PRICE of growth is too high



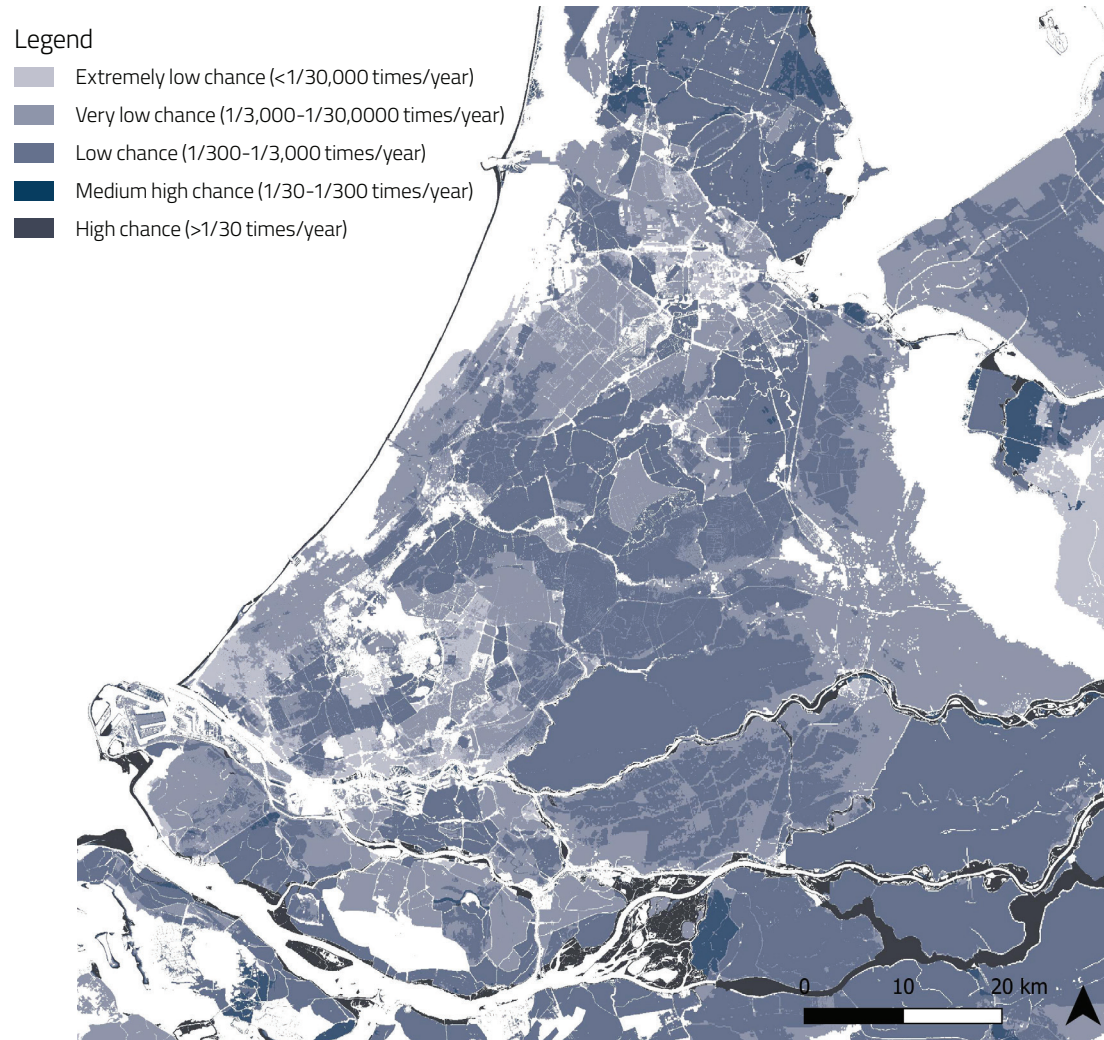
Source: EZK, 2024, after ABF, 2024

Economic growth in the built environment

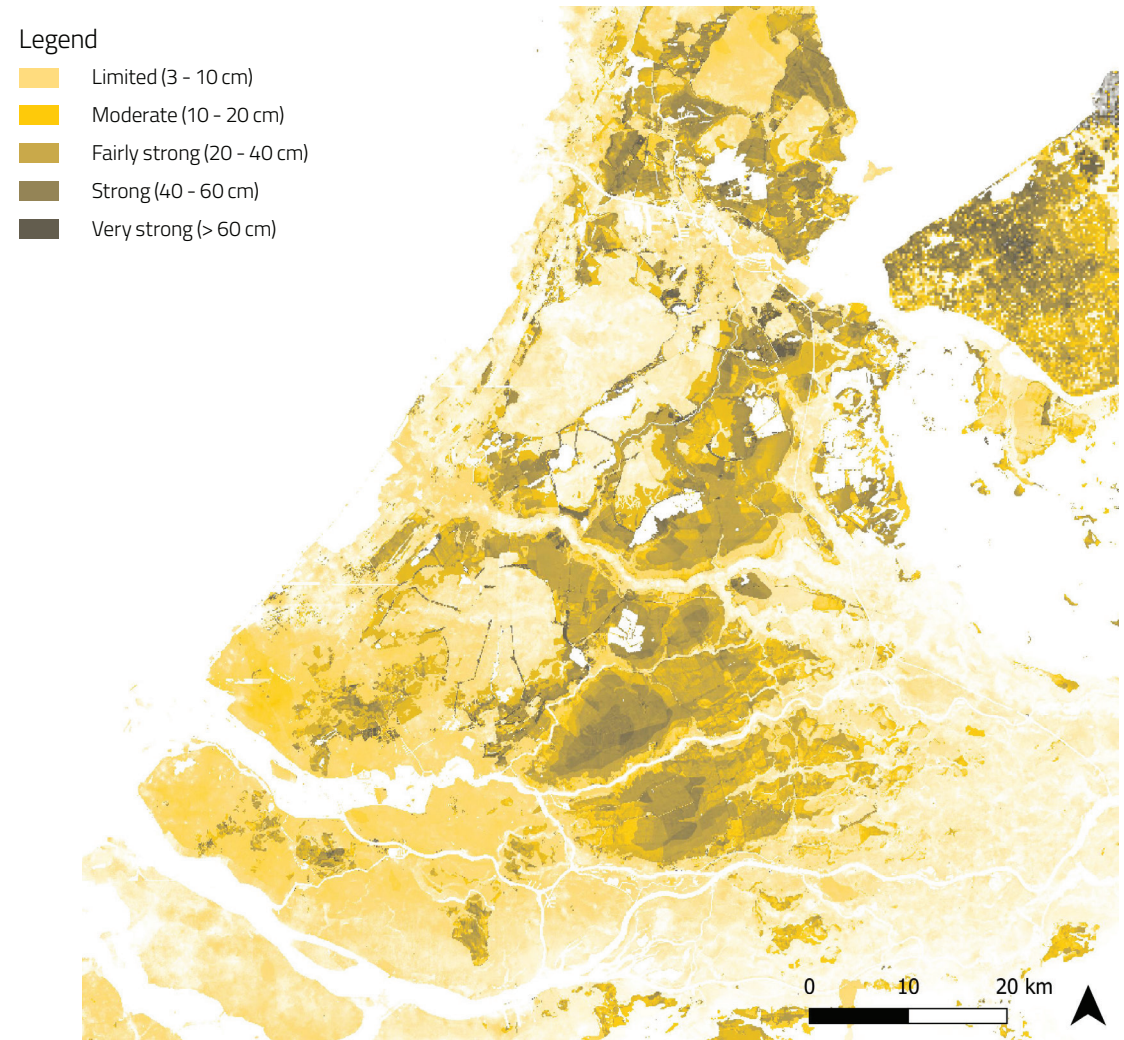


Systemic section of the economic system in the Randstad (own work, based on EZK, 2024)

The Randstad grows in an unsuitable place

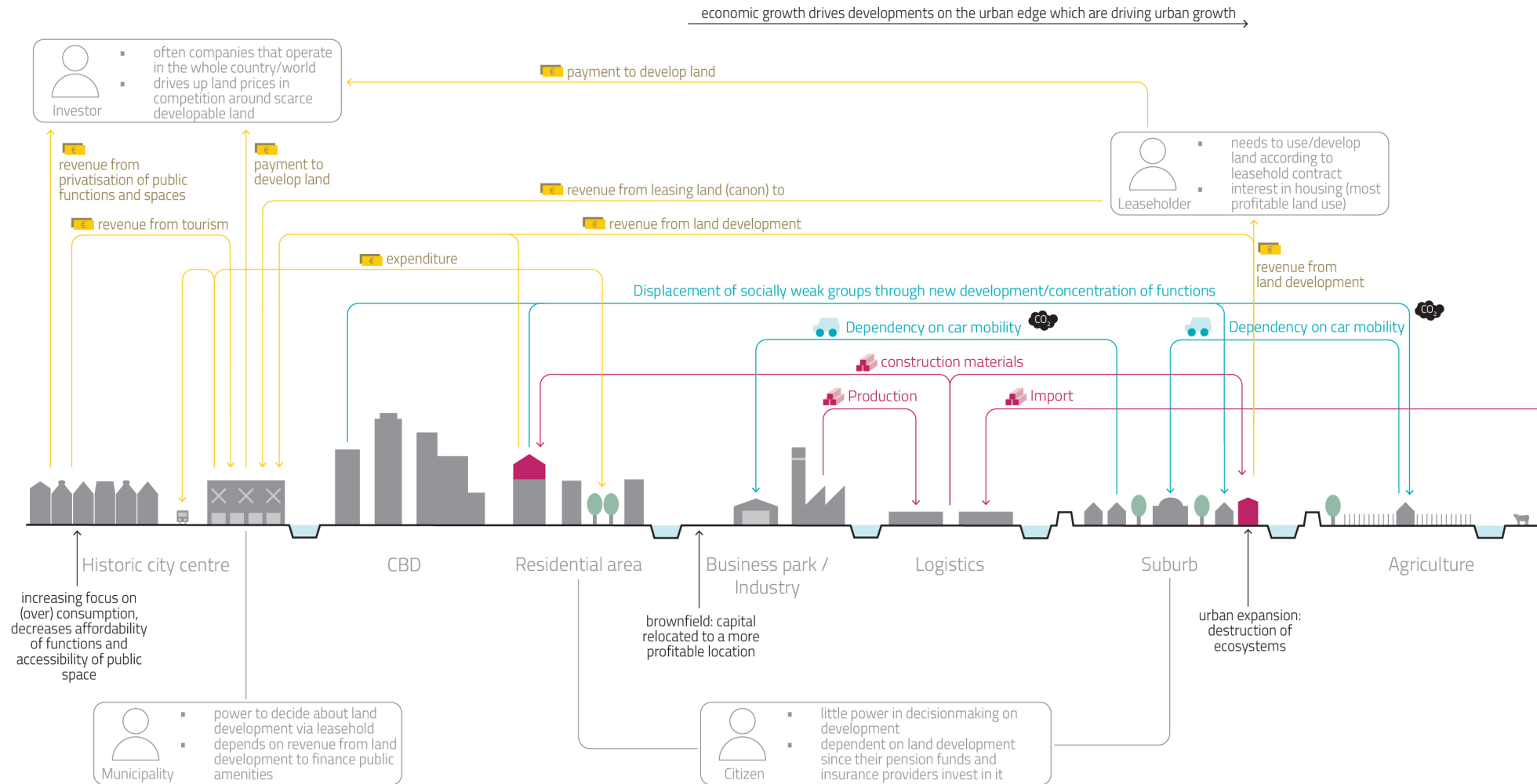


Flood probability in 2050 (> 0 cm) (own work based on LIWO, 2023)



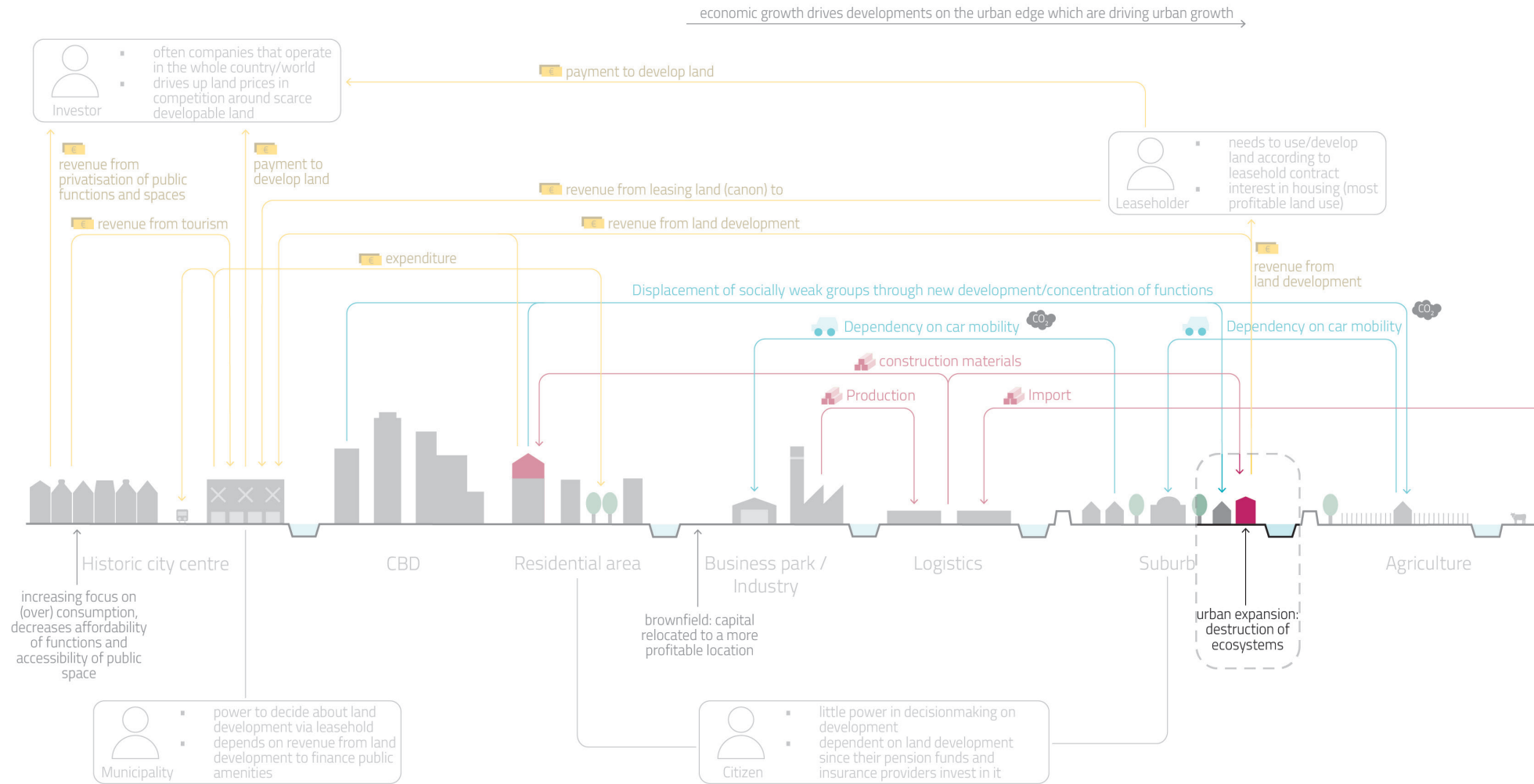
Ground subsidence by 2050 (own work based on Deltares et al., 2021)

Urban growth



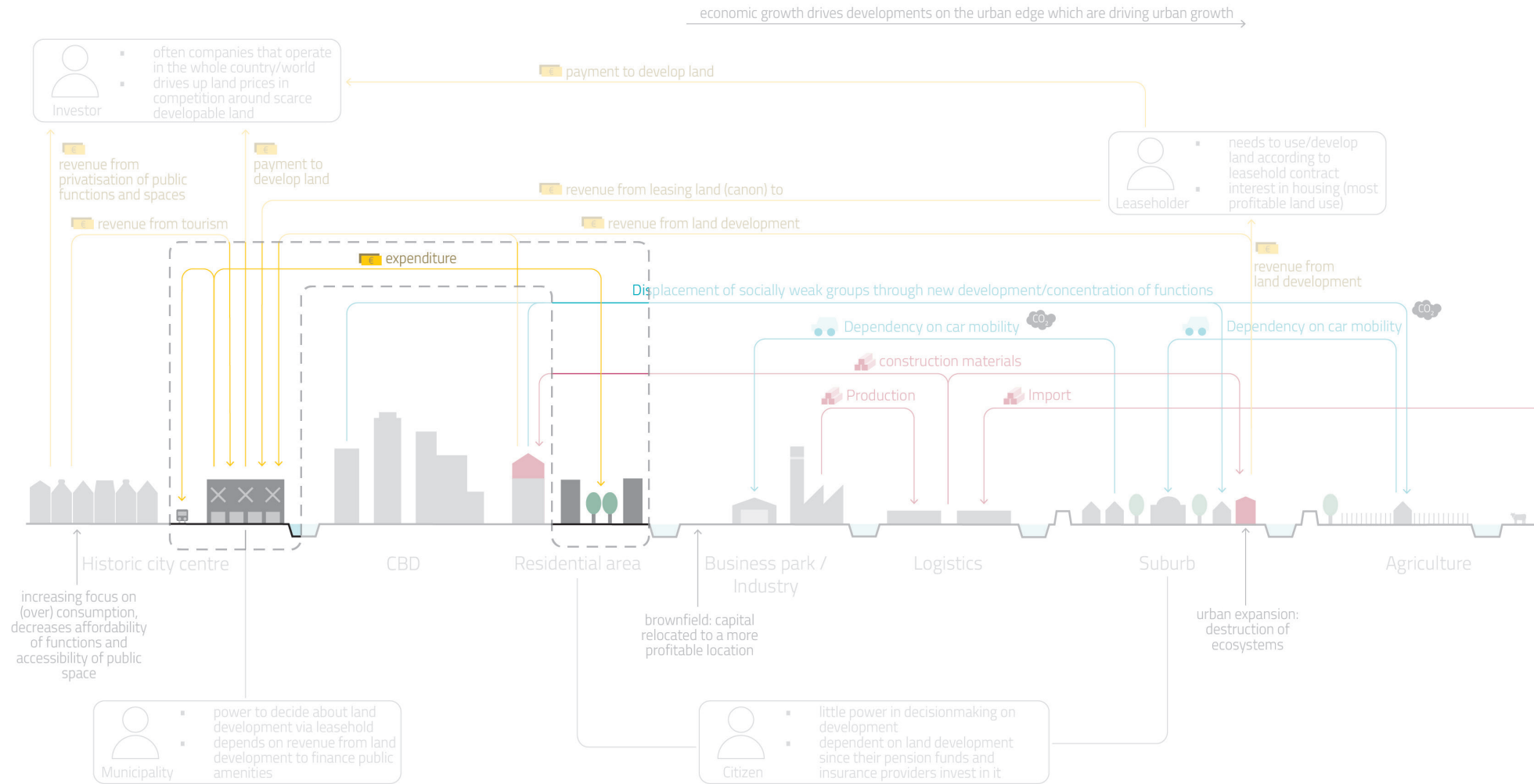
Source: own work, based on BURA & Crimson, 2024; Durrant et al., 2023; Gemeente Amsterdam, 2017; Savini, 2021; Xue, 2022

Urban growth



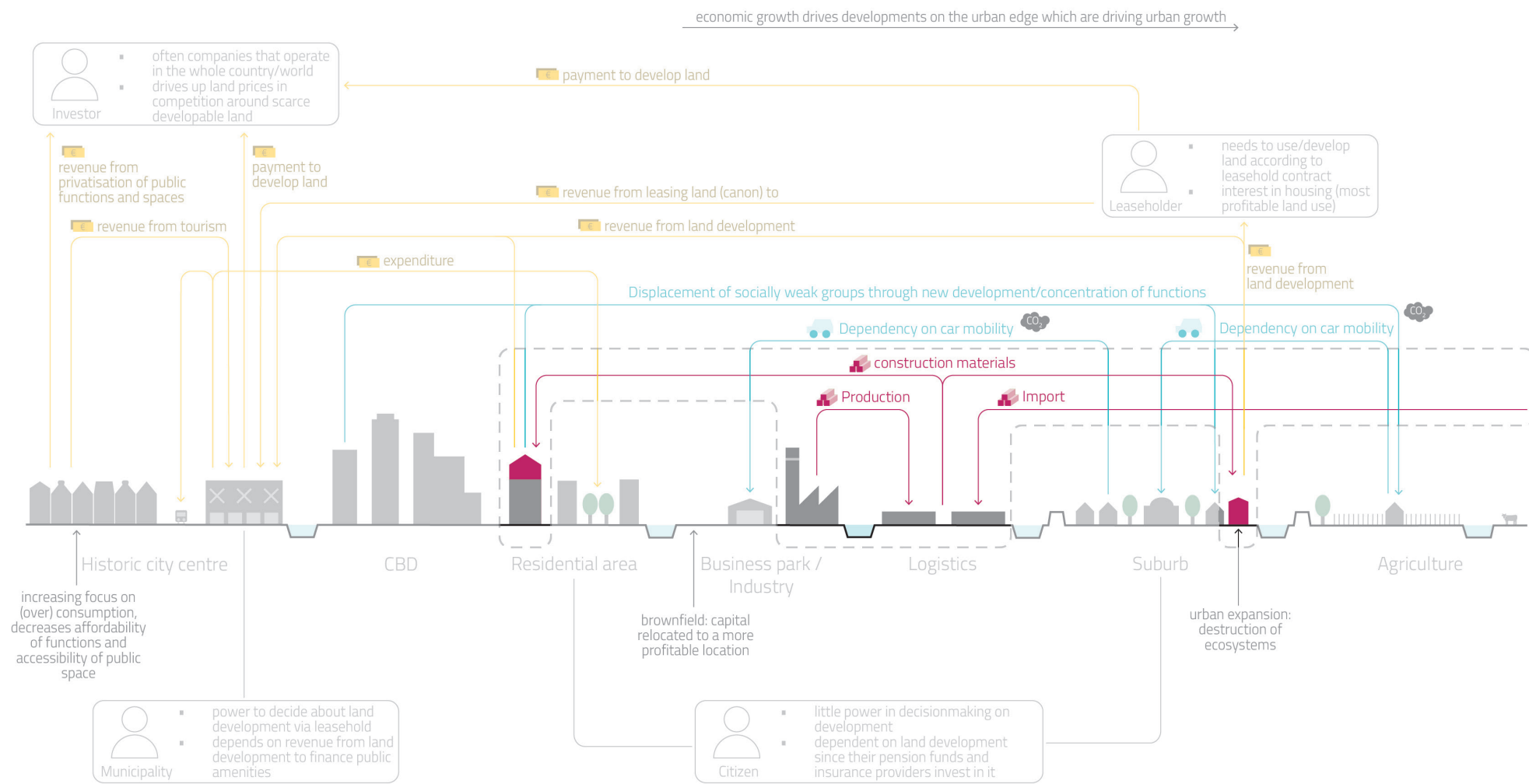
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Urban growth



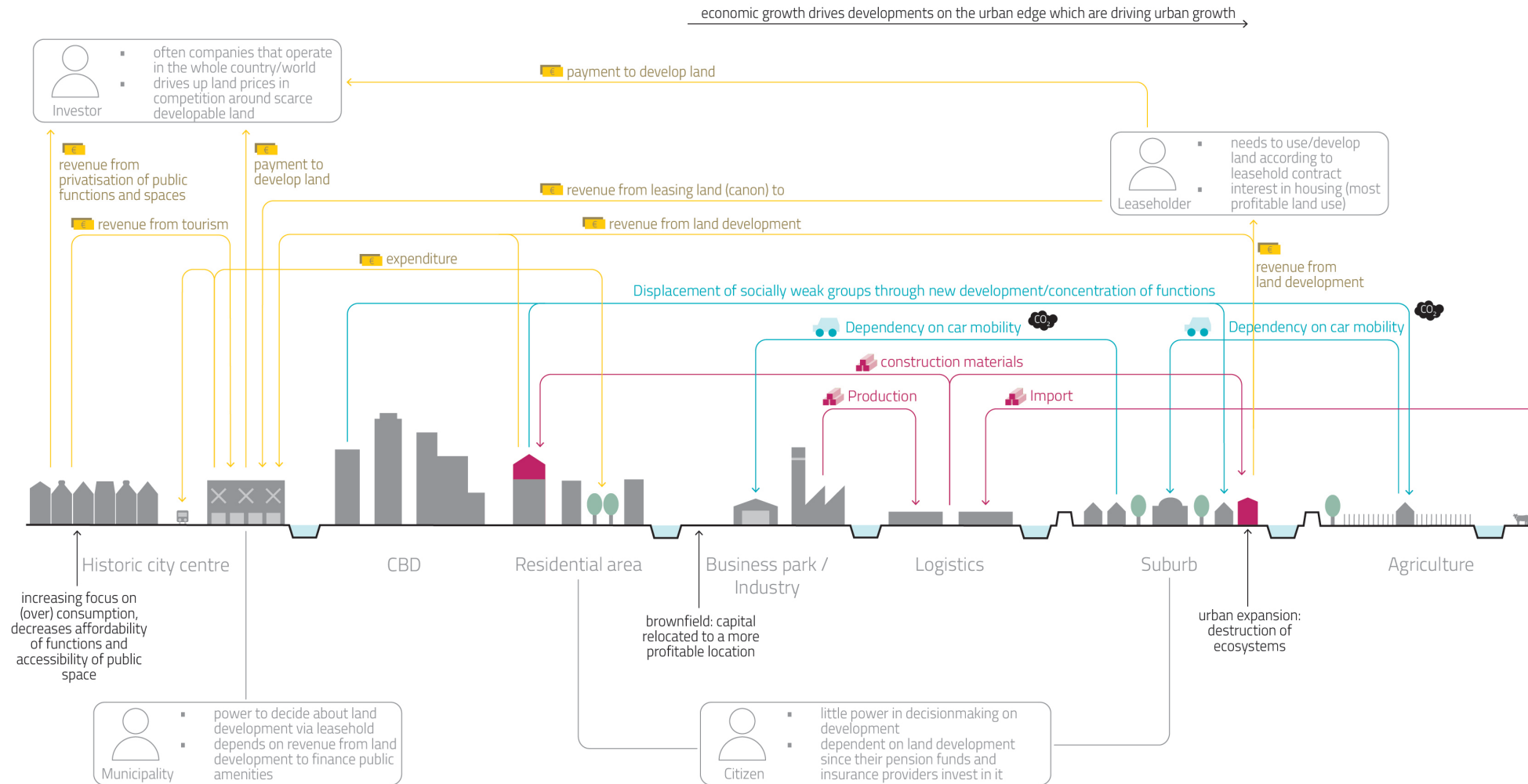
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Urban growth



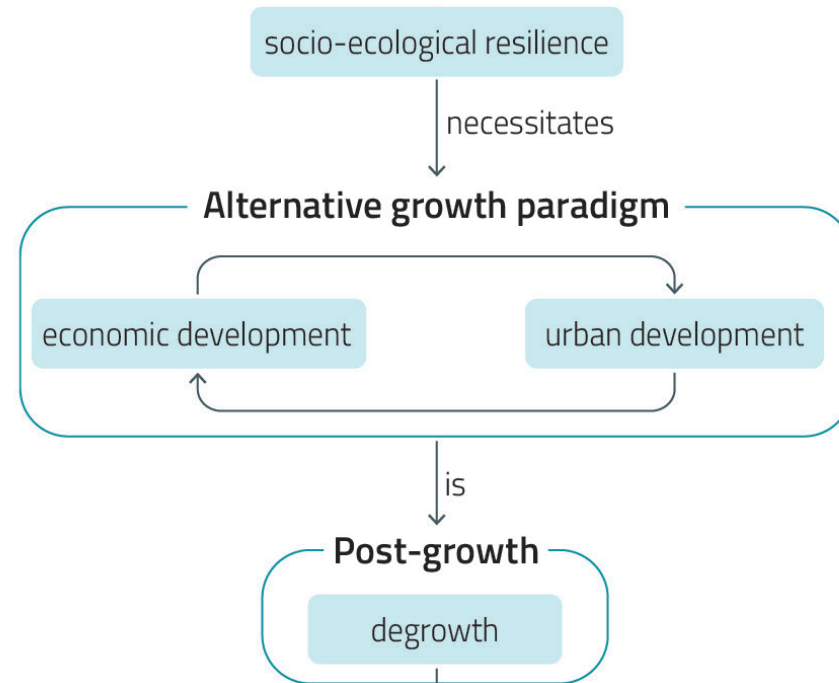
Source: own work, based on BURA & Crimson, 2024; Durrant et al., 2023; Gemeente Amsterdam, 2017; Savini, 2021; Xue, 2022

Economic growth = Urban growth

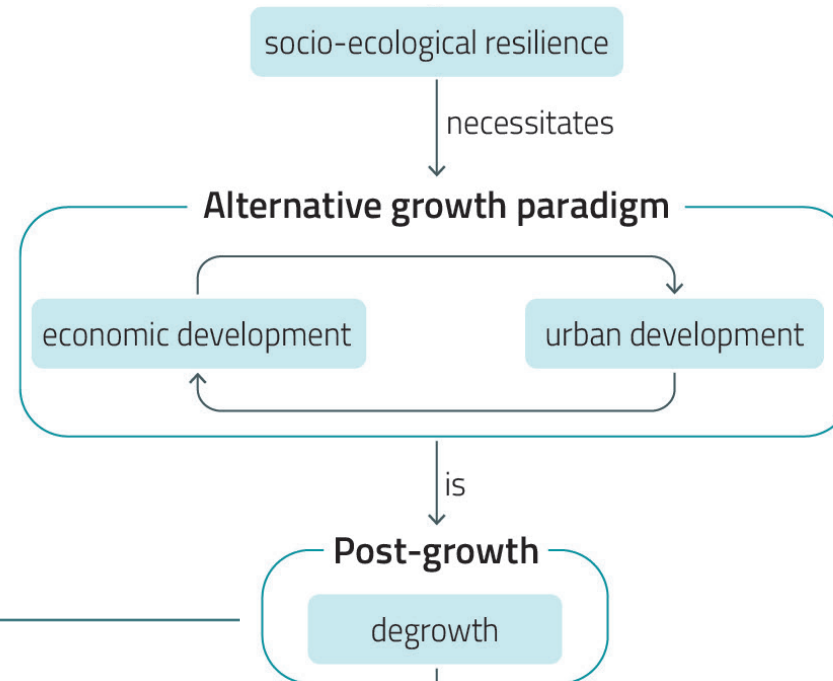


Source: own work, based on BURA & Crimson, 2024; Durrant et al., 2023; Gemeente Amsterdam, 2017; Savini, 2021; Xue, 2022

An alternative growth paradigm



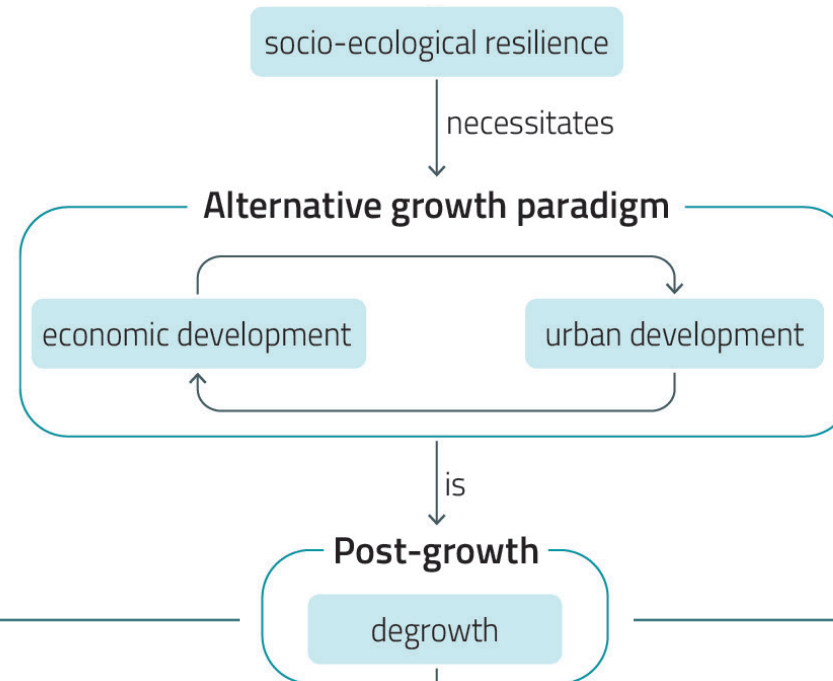
An alternative growth paradigm



POST-GROWTH

- economic restructuring
- decoupling of resource use
- regeneration and care

An alternative growth paradigm



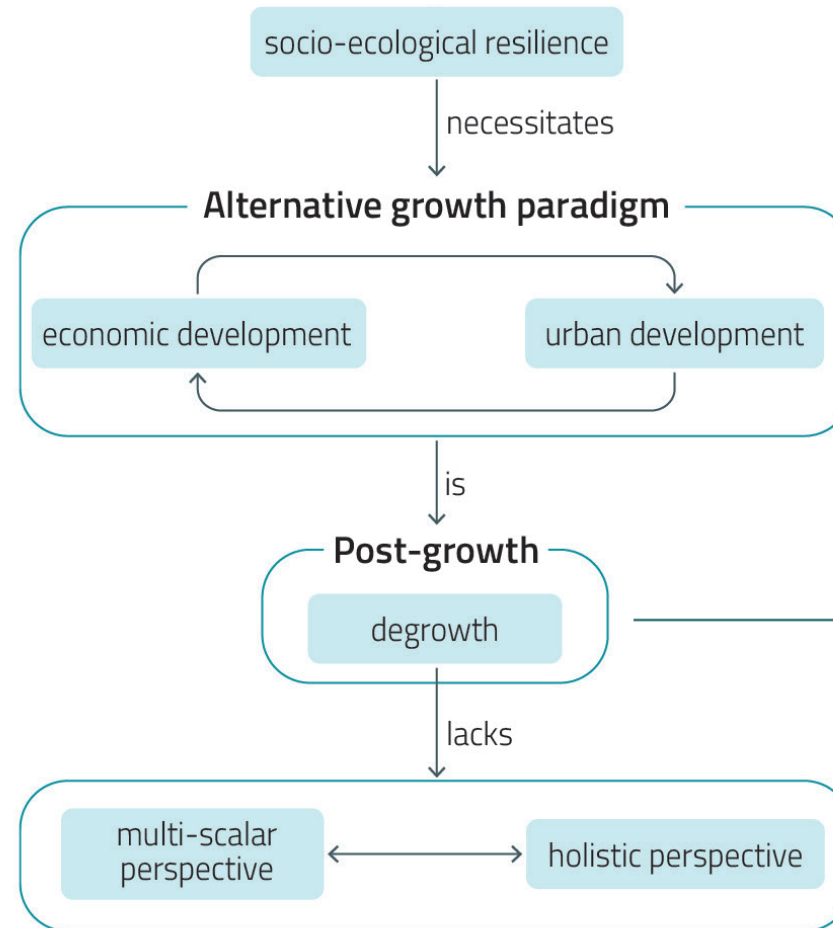
POST-GROWTH

- economic restructuring
- decoupling of resource use
- regeneration and care

DEGROWTH

- post-growth approach
- economic downscaling
- sufficiency, reuse, sharing

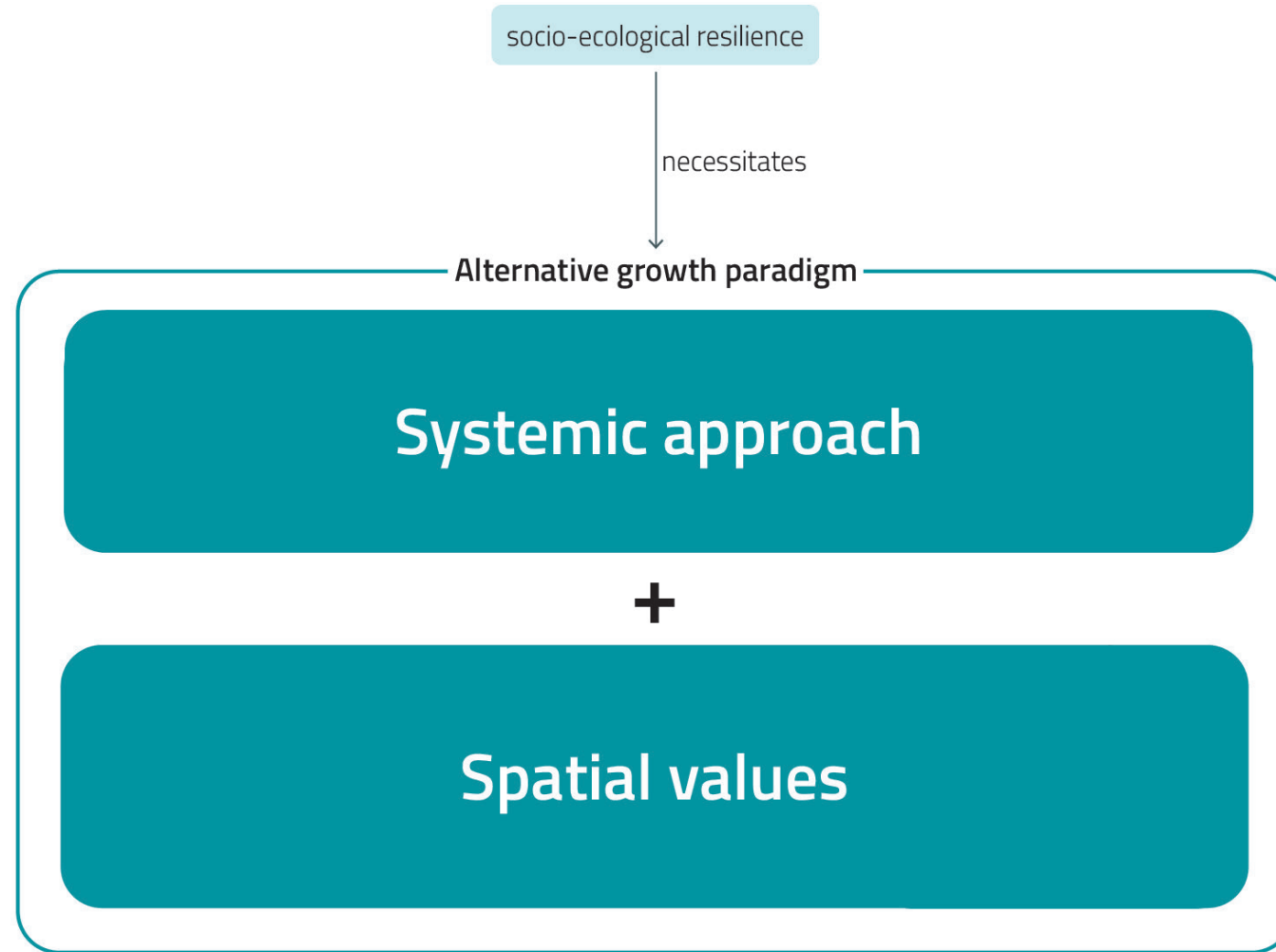
An alternative growth paradigm



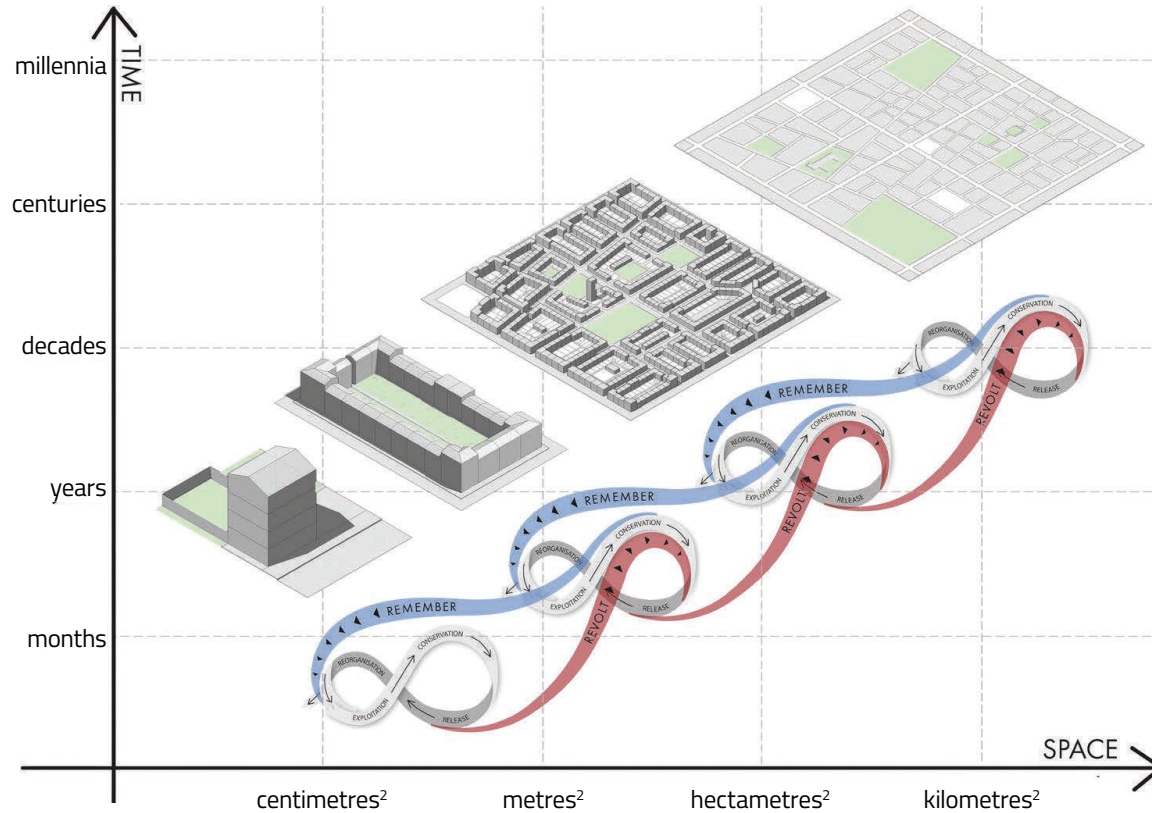
DEGROWTH

- post-growth approach
- economic downscaling
- sufficiency, reuse, sharing

How to translate degrowth into space?

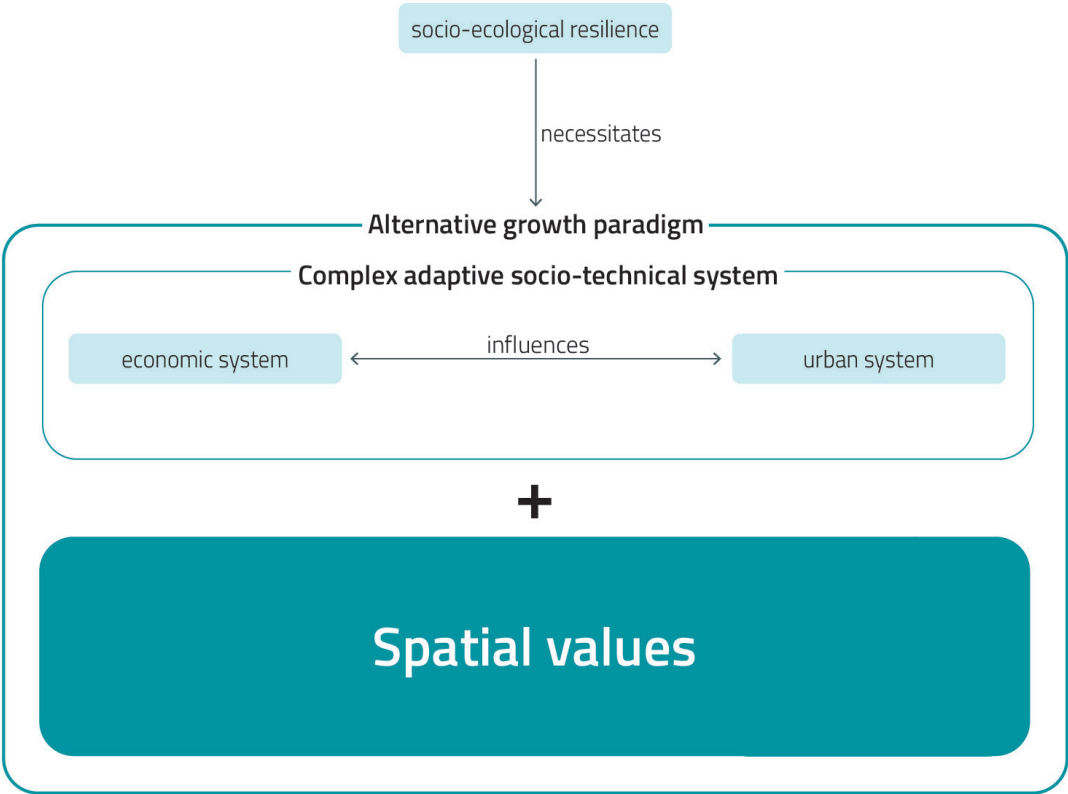
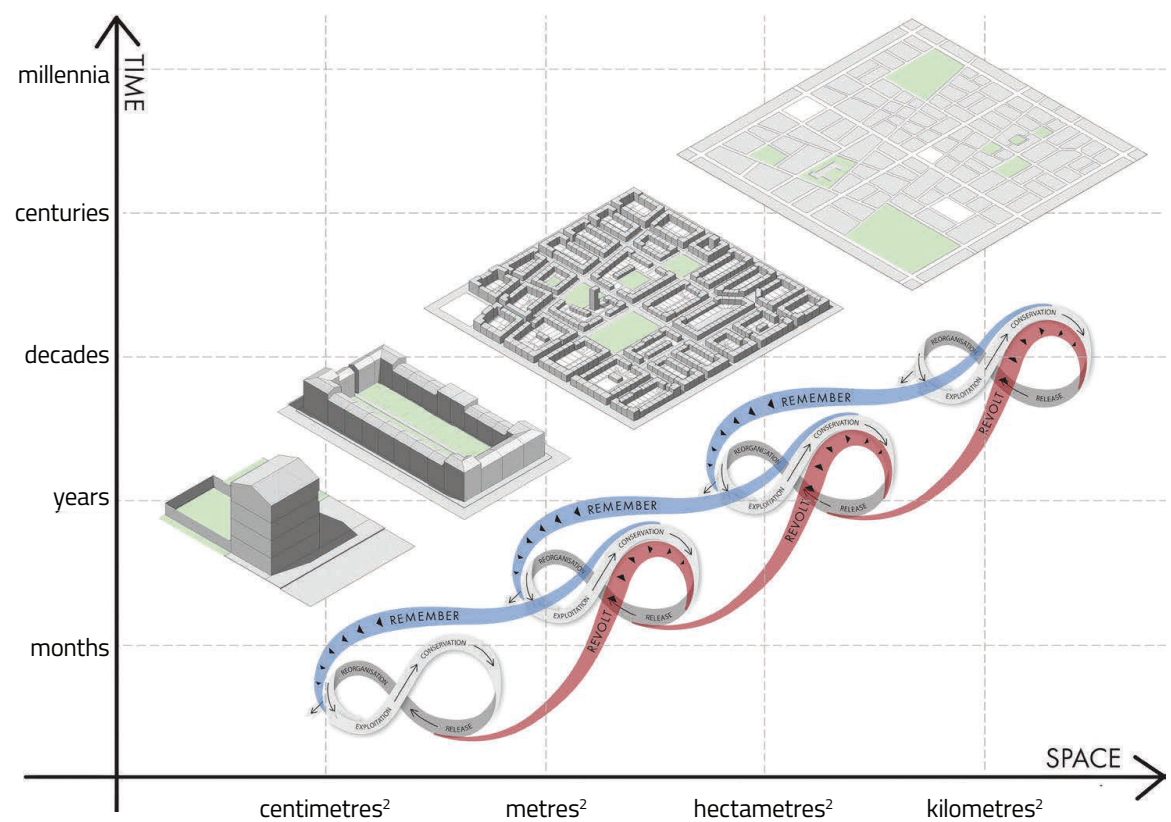


Systemic approach



Source: Romice et al., 2020

Systemic approach



Source: Romice et al., 2020

Spatial values for degrowth

Regionalism

The region strives to fulfil its resource needs through regional sourcing and production as much as possible.

R7

SPACES FOR PRODUCTION



Spatial values for degrowth

Regionalism

The region strives to fulfil its resource needs through regional sourcing and production as much as possible.

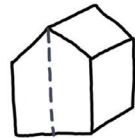
Sufficiency

Essential functions are satisfied while society limits its resource consumption.

R7 SPACES FOR PRODUCTION



P10 SPLIT LARGE HOUSING



Spatial values for degrowth

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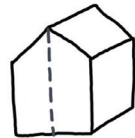
Distributive justice

Access to amenities and resources related to essential functions is distributed equally.

R7 SPACES FOR PRODUCTION ● □ △



P10 SPLIT LARGE HOUSING ● □ ▲



N4 AFFORDABLE HOUSING ● □ △



Spatial values for degrowth

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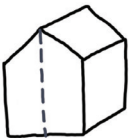
Commons

Resources and services are shared on a local community basis; within those communities shared decision-making happens.

R7 SPACES FOR PRODUCTION ● □ △



P10 SPLIT LARGE HOUSING ● □ ▲



N4 AFFORDABLE HOUSING ● □ △



N1 COMMUNITY-LED DEVELOPMENT ● □ △



Spatial values for degrowth

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The region strives to fulfil its resource needs through regional sourcing and production as much as possible.

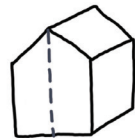
R7 SPACES FOR PRODUCTION ● □ △



Sufficiency

Essential functions are satisfied while society limits its resource consumption.

P10 SPLIT LARGE HOUSING ● □ ▲



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N4 AFFORDABLE HOUSING ● □ △



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N1 COMMUNITY-LED DEVELOPMENT ● □ △



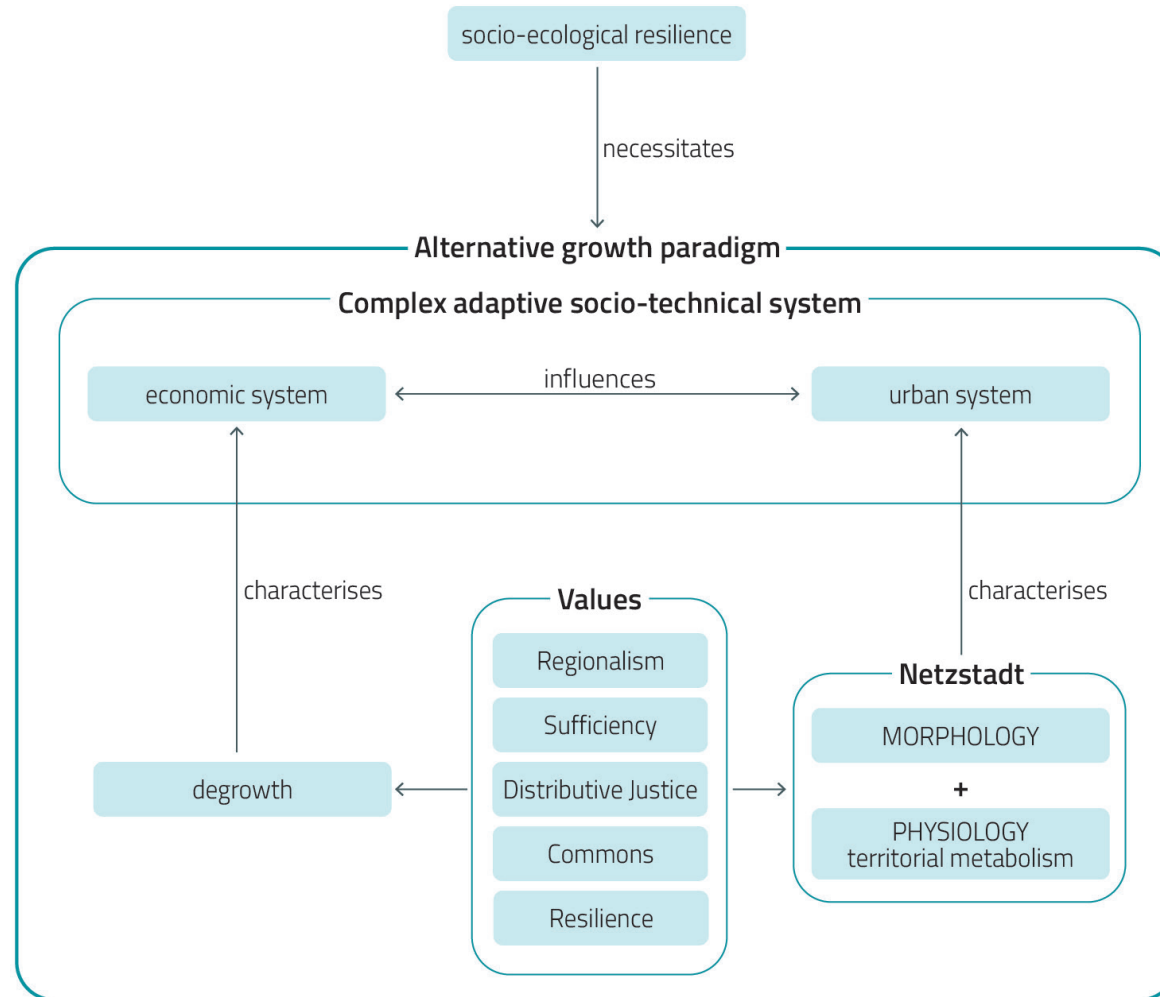
Resilience

The urban-economic system is able to adapt and evolve in an uncertain future in a way that allows the socio-ecological system to do the same.

C1 DON'T EXPAND THE CITY ● □ △



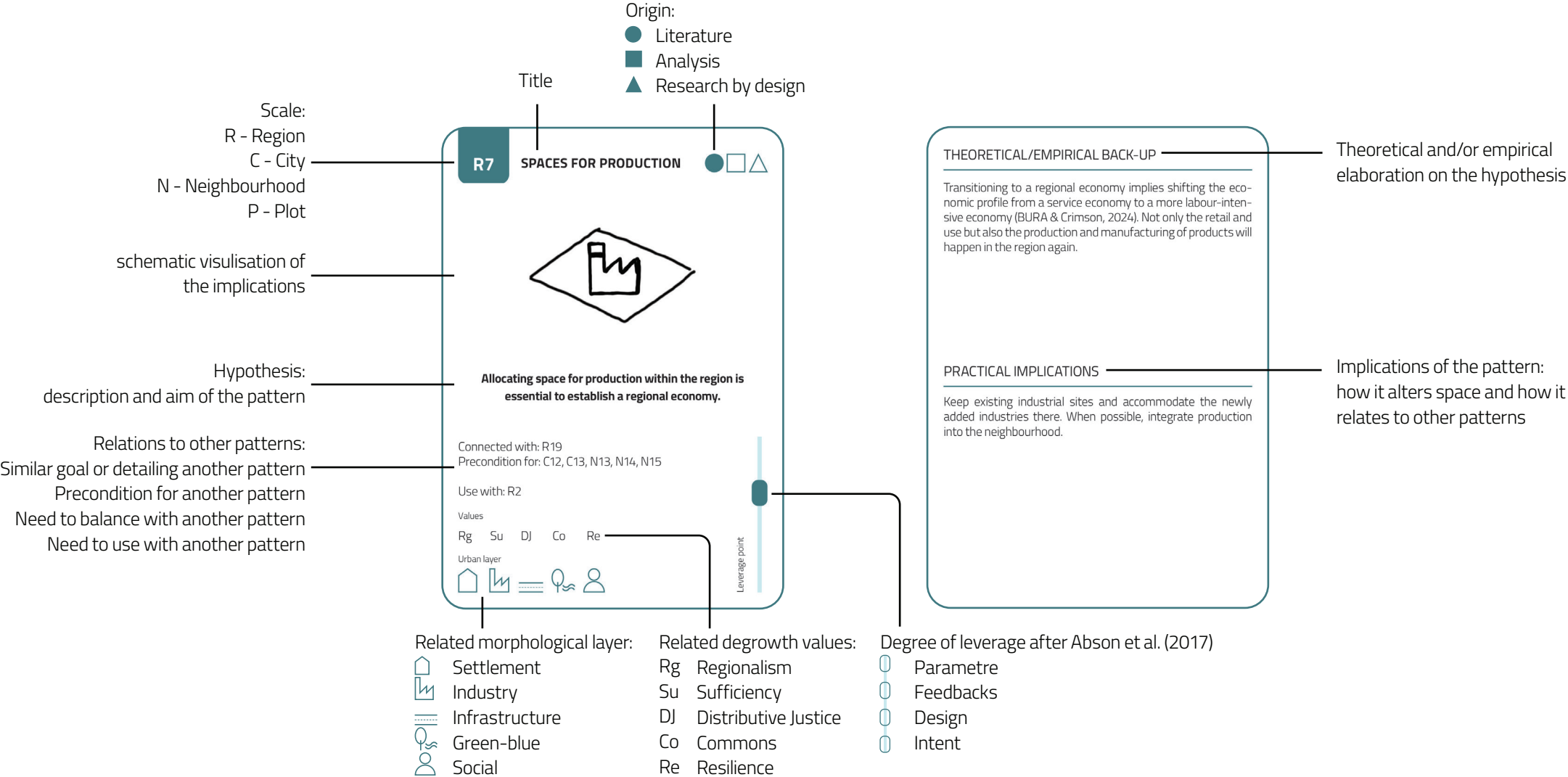
Conceptual framework



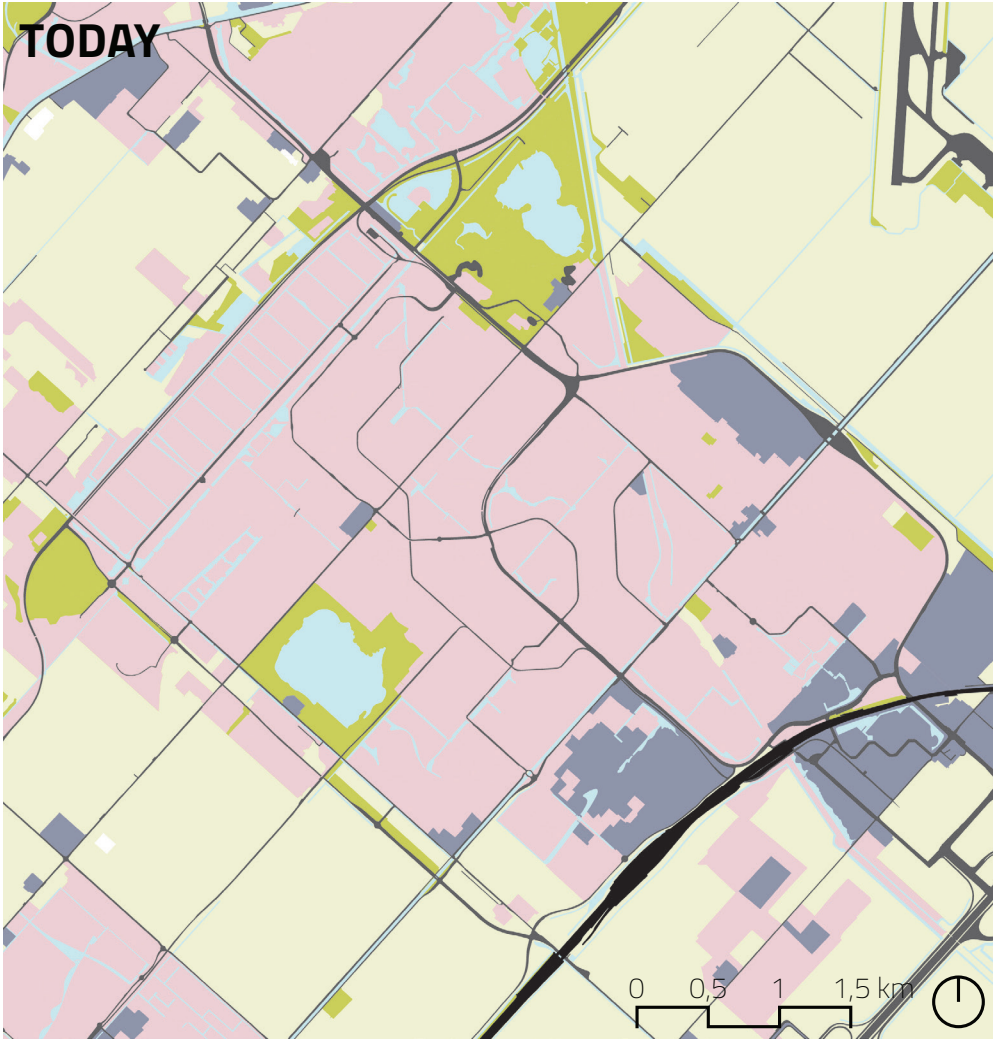
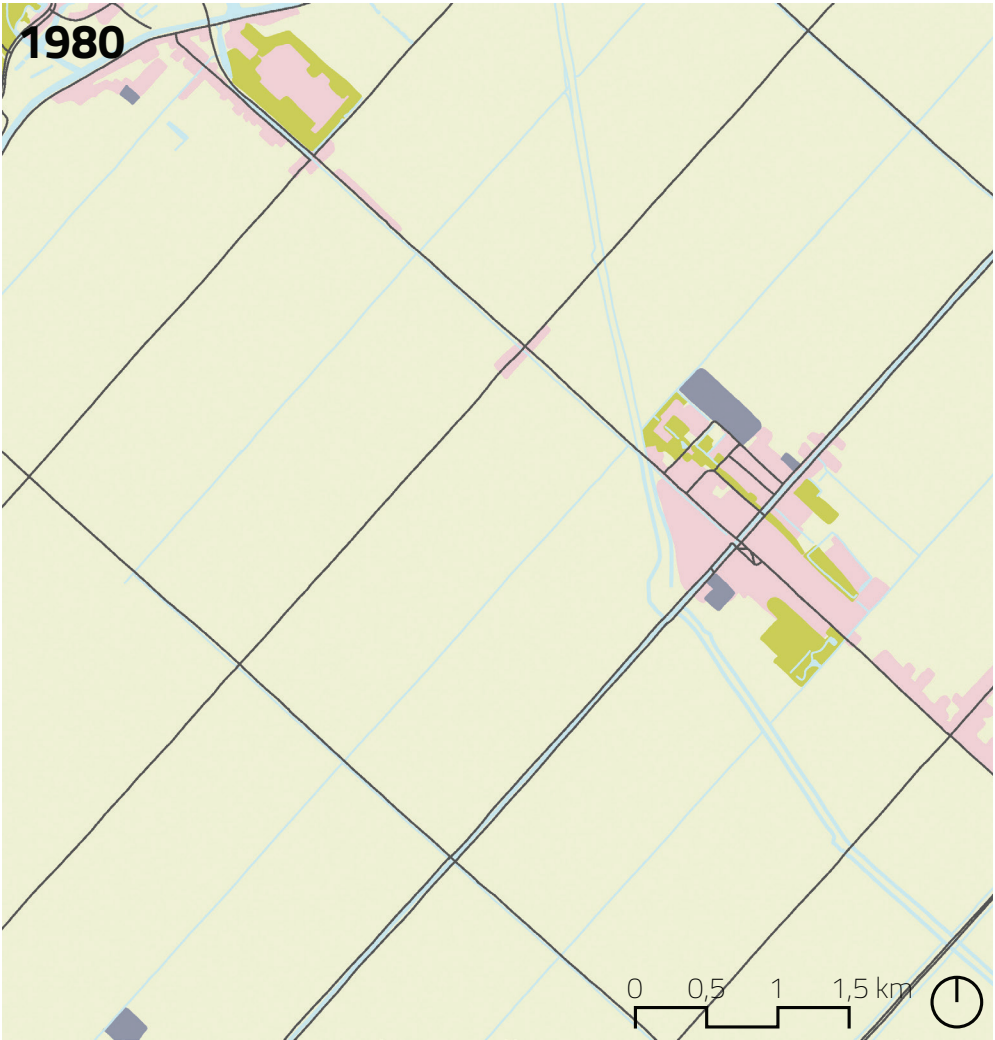
Research question

How could **degrowth values** inform metropolitan development to overcome its **growth dependency** and increase **socio-ecological resilience** in the **Metropolitan Region of Amsterdam (MRA)**?

Patterns



Urban growth




Settlement Industrial area Agriculture Urban green (park, graveyard, sports field etc.) Water Main road Railway

Urban growth - patterns

C17

**COMPANY AGGLOMERATION
ALONG TRANSPORT
INFRASTRUCTURE**



Locating companies close to transport infrastructure
allows for easy economic exchange within the region and
minimizes nuisance within the city.


Connected with: C14, C30
Precondition for: C15, C22


Use with: R17

Values


Rg

Urban layer



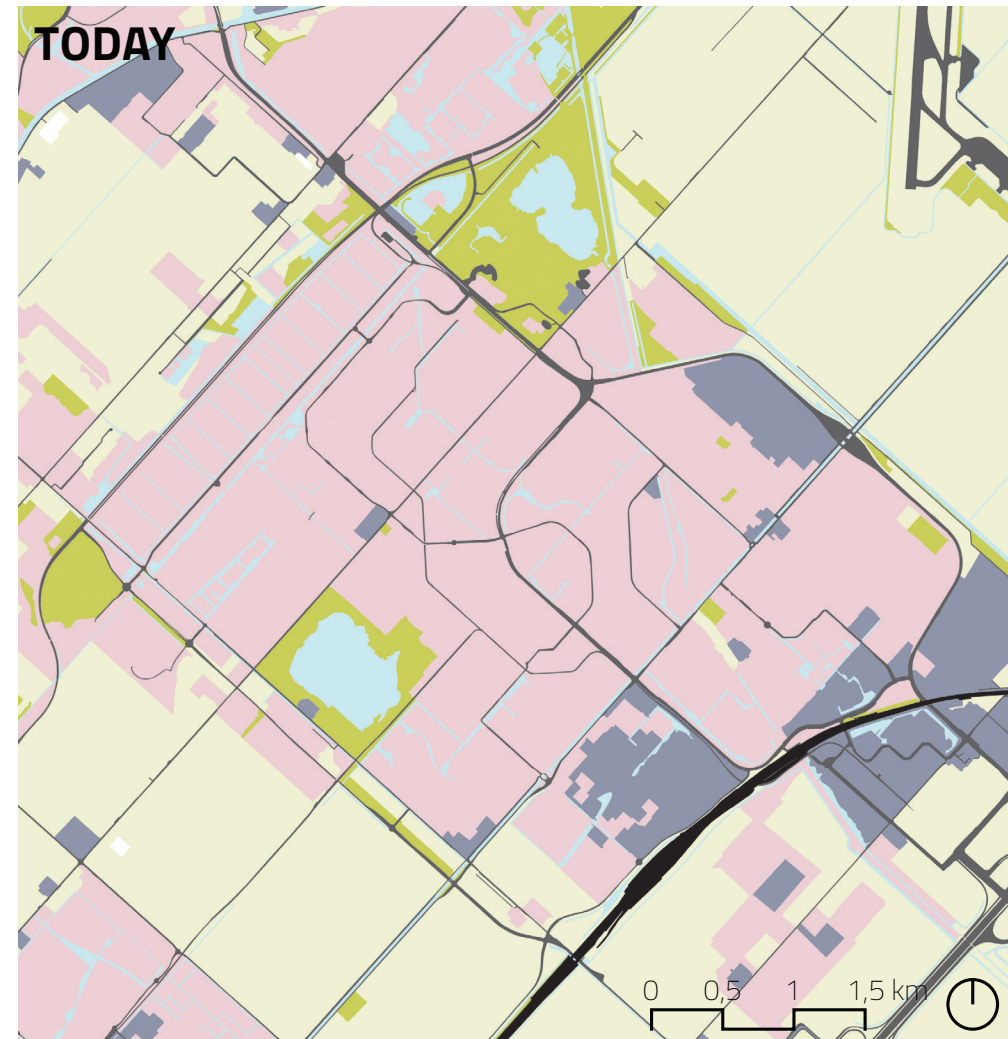


Leverage point



Legend

- Settlement
- Industrial area
- Agriculture
- Urban green (park, grave-
yard, sports field etc.)
- Land under development
- Water
- Main road
- Railway




Source: own work, based on CBS, 2025

Urban growth - patterns

C17

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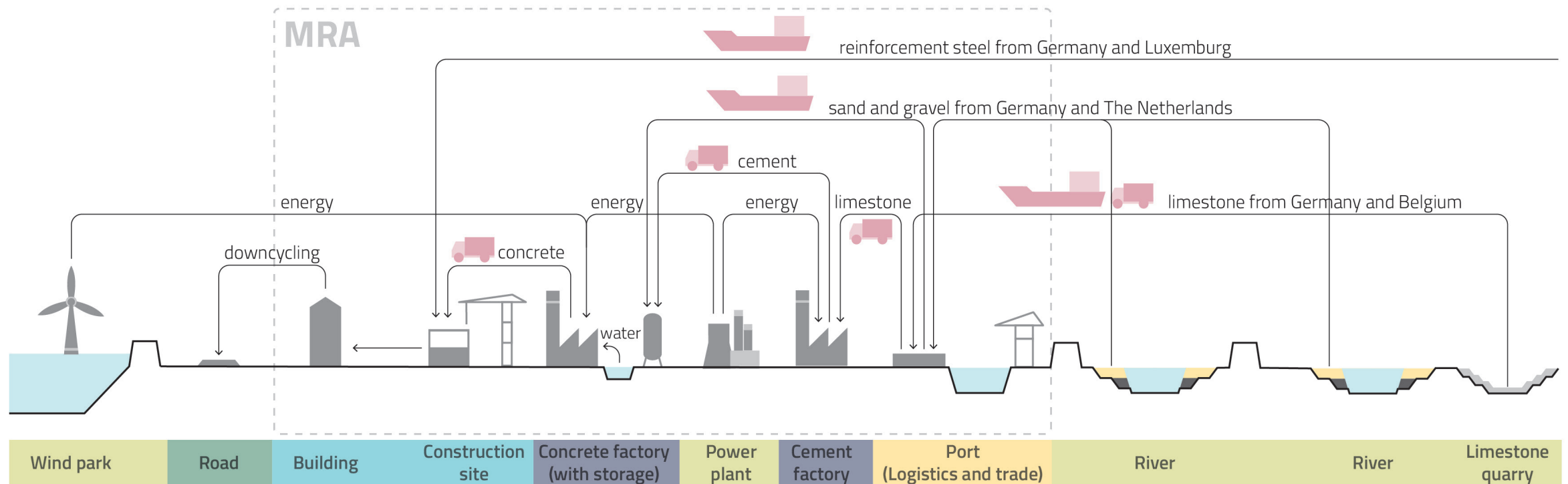
Leverage point





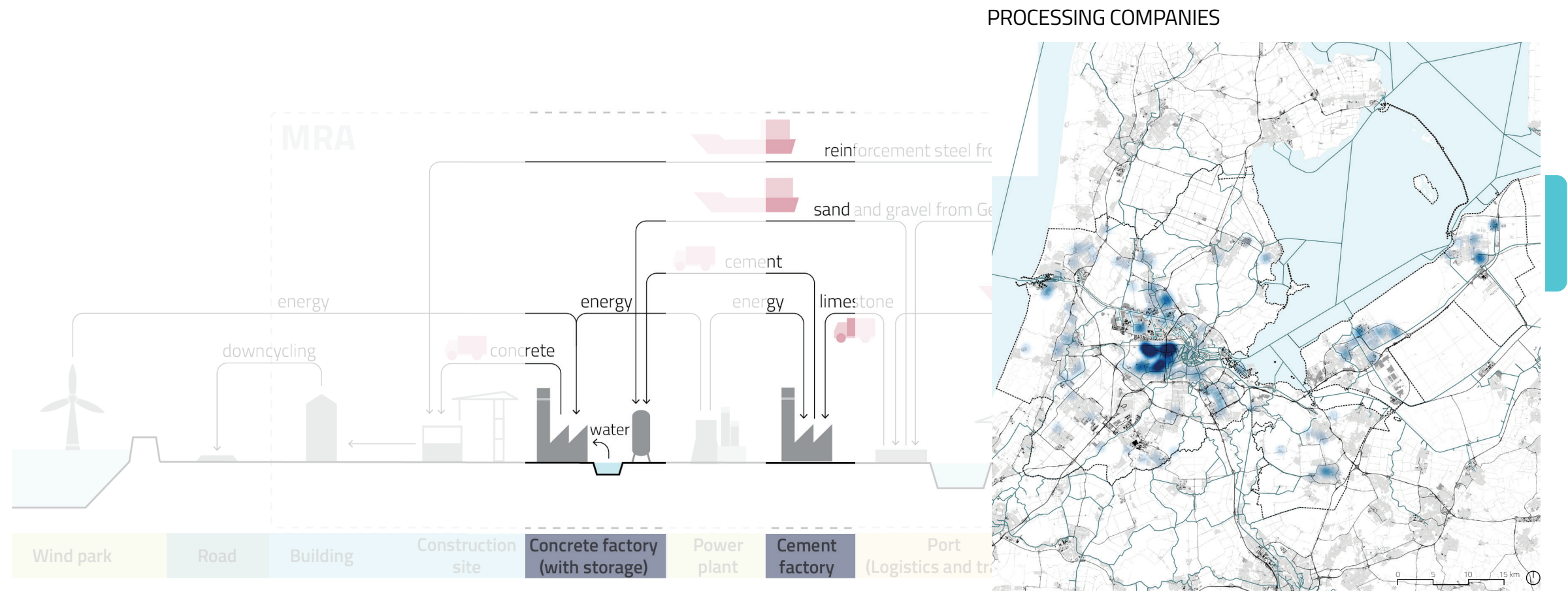
Source: own photograph

Related material flows - concrete



Source: own work, based on van der Schuit et al., 2023

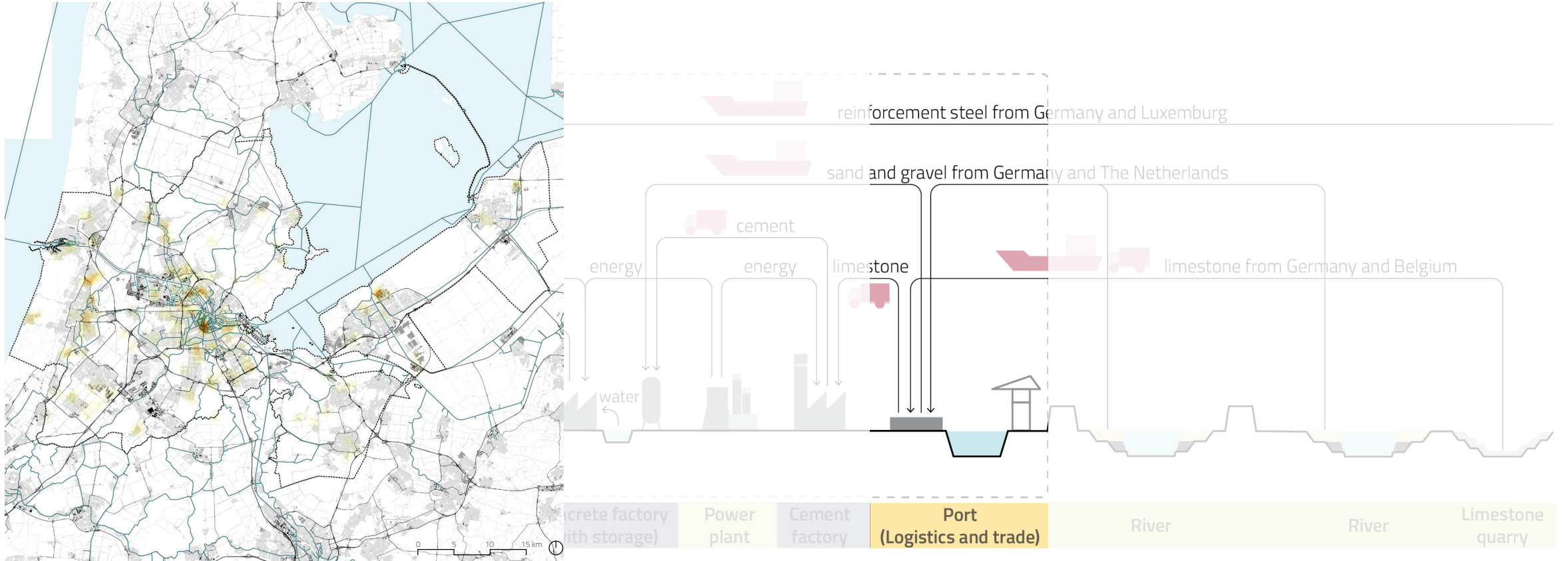
Related material flows - concrete



Section: own work, based on van der Schuit et al., 2023; Map: own work, based on Stichting LISA, 2024

Related material flows - concrete

RETAIL COMPANIES



Section: own work, based on van der Schuit et al., 2023; Map: own work, based on Stichting LISA, 2024

Where is the region headed?

**“A HOME TO THRIVING PEOPLE
IN A THRIVING PLACE,
WHILE RESPECTING THE WELLBEING OF ALL PEOPLE
AND THE HEALTH OF THE WHOLE PLANET”**

- 50%
consumption of new
raw materials by
2030

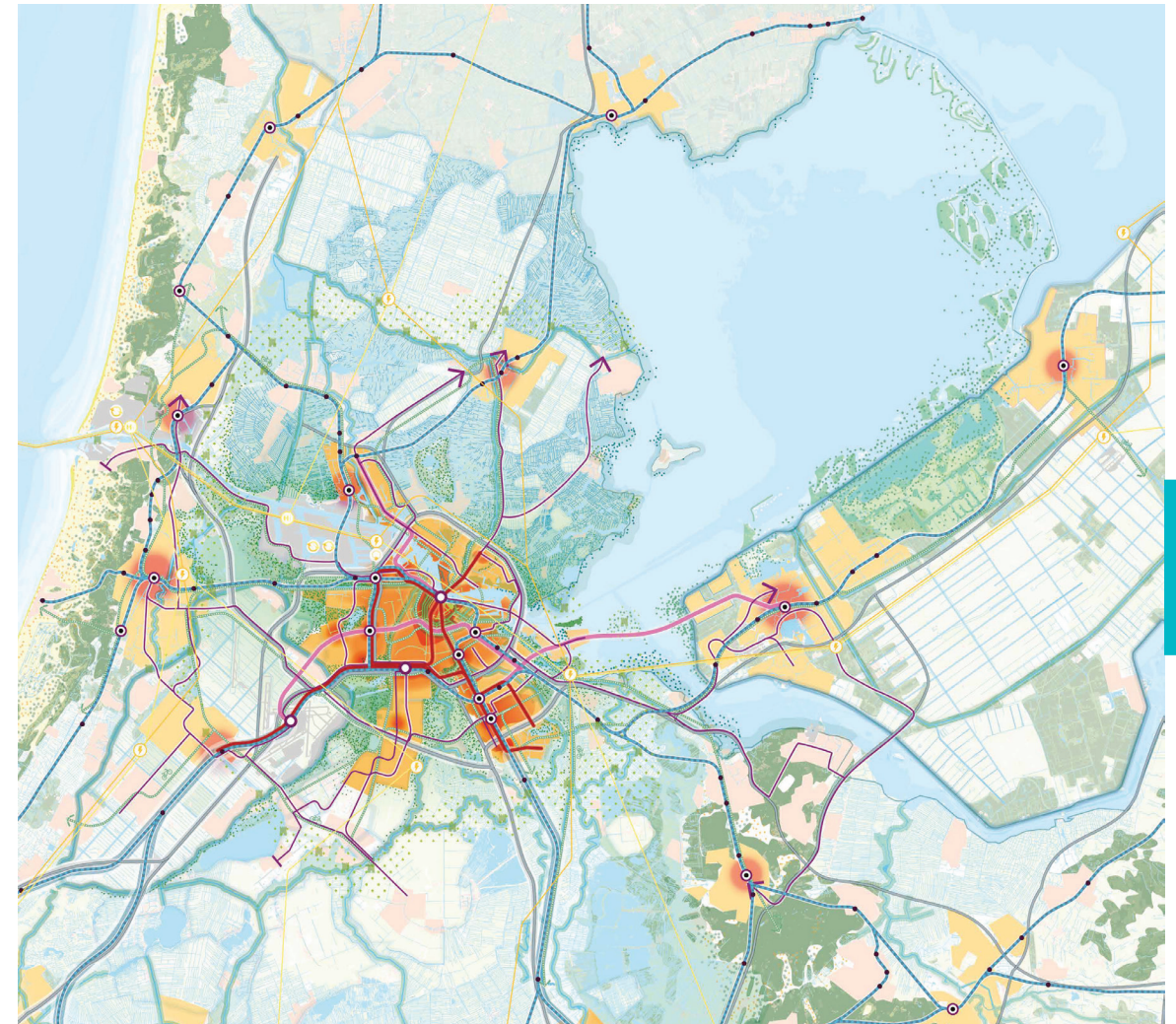
Quote: Raworth et al., 2020; Figure: Gemeente Amsterdam, 2020

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- 50%
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Quote: Raworth et al., 2020; Figure: Gemeente Amsterdam, 2020




Source: Gemeente Amsterdam, 2021

Where is the region headed?

SETTLEMENT

C1

DON'T EXPAND THE CITY



Limiting the growth of cities preserves natural resources and biodiversity while keeping a compact urban structure.



Connected with: C4, C12, C29, N2, P5, P6
Precondition for: X3
Balance with: P1, N10
Use with: C5, C23

Values

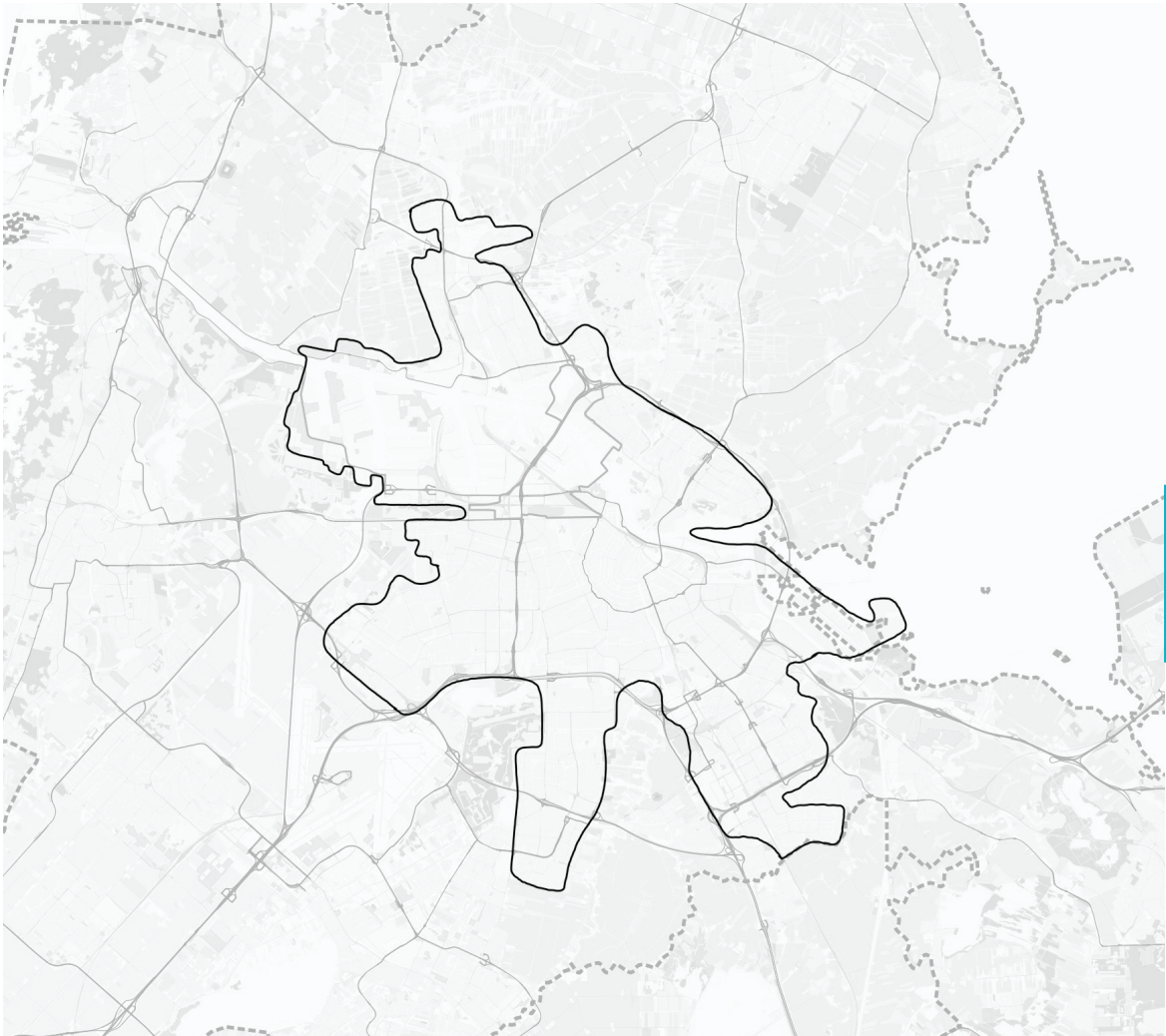
Su

Re

Urban layer



Leverage point




Source: own work, based on Gemeente Amsterdam, 2021

Where is the region headed?

SETTLEMENT

C1 **DON'T EXPAND THE CITY** ● ◻ ▲




Limiting the growth of cities preserves natural resources and biodiversity while keeping a compact urban structure.

Connected with: C4, C12, C29, N2, P5, P6
Precondition for: X3
Balance with: P1, N10
Use with: C5, C23

Values


Su Re

Urban layer



Leverage point

N8 **HIGH-DENSITY SETTLEMENT STRUCTURE** ● ■ ▲




Dense urban forms reduce land take, support shared infrastructure, and increase access to services and green space.

Precondition for: C24, P8
Use with: R1, R13, C2, C7, C9, N1, N21, N24

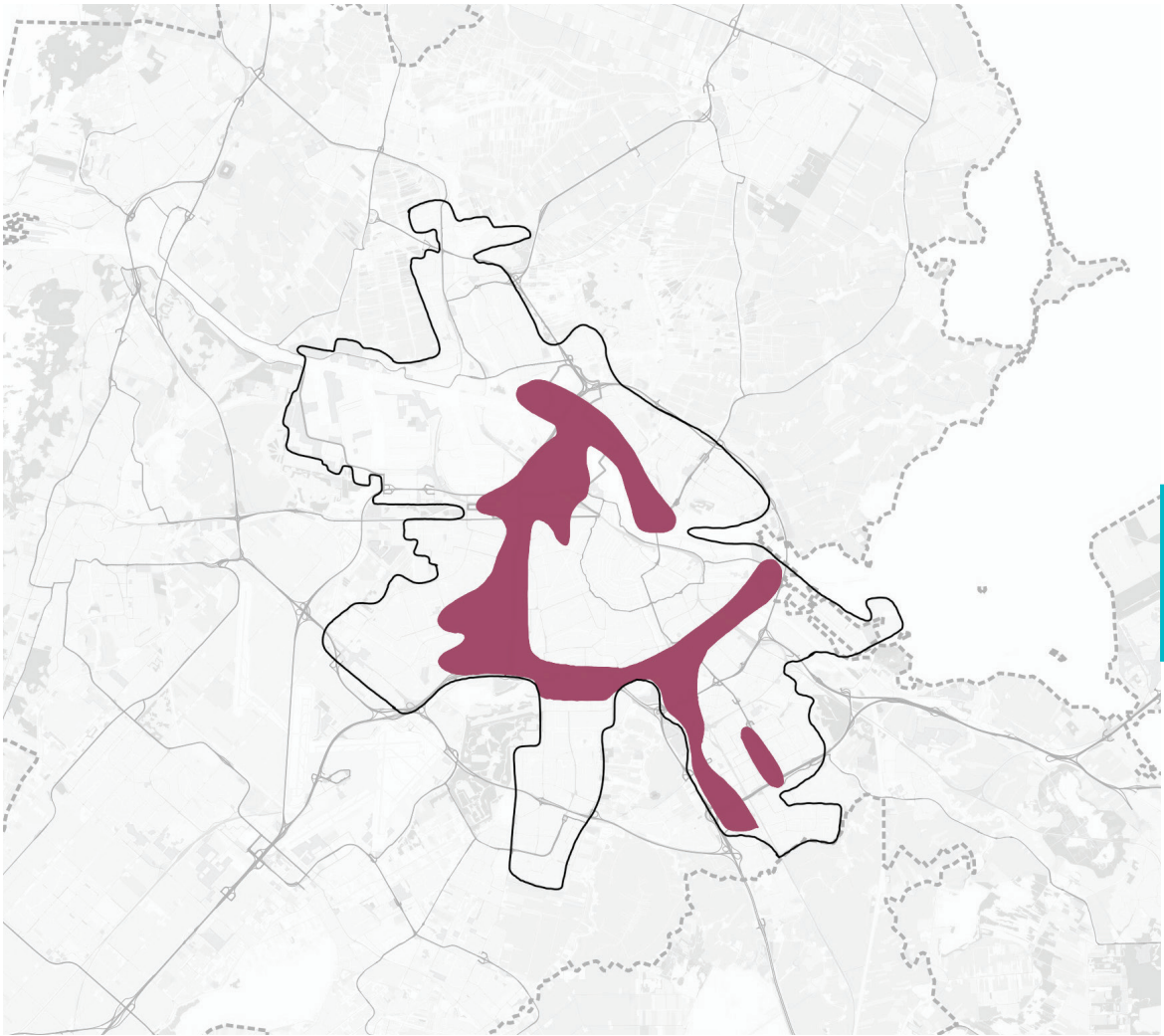
Values

Su DJ Co

Urban layer



Leverage point




Source: own work, based on Gemeente Amsterdam, 2021

What should the region do differently?

SETTLEMENT

C1

DON'T EXPAND THE CITY



Limiting the growth of cities preserves natural resources and biodiversity while keeping a compact urban structure.

Connected with: C4, C12, C29, N2, P5, P6
Precondition for: X3
Balance with: P1, N10
Use with: C5, C23

Values

Su


Re

Urban layer

Leverage point

N2

MAXIMUM HOUSING SIZE PER PERSON



Capping per-capita housing prevents excess consumption and redistributes residential space more evenly while encouraging sufficient lifestyles.

Connected with: C1, N4, N21, P2, P10, P13
Use with: P1, P4, P5

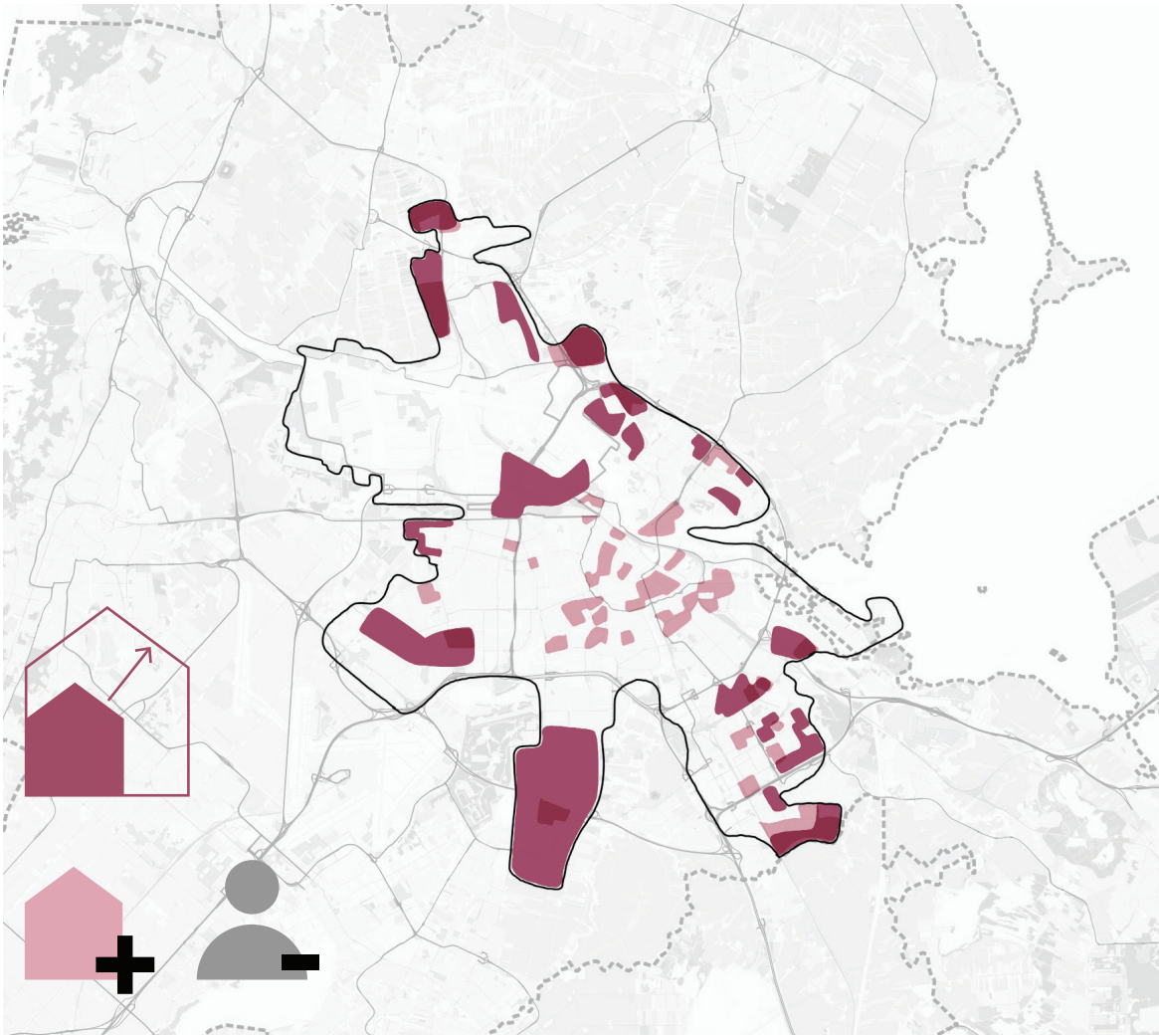
Values

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Urban layer

Leverage point

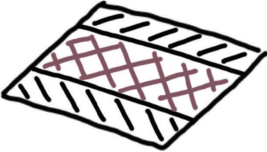


Where is the region headed?

SETTLEMENT & INDUSTRY

C5

ZONING FOR MIXED-USE



Zoning creates the basis for the integration of production and residential functions in order to minimize distances and ecological impacts and to incentivize community-based forms of working and living.



Precondition for: C1, C6, C12, C13, C21, C25, N13, N22
Balance with: C14
Use with: R3

Values

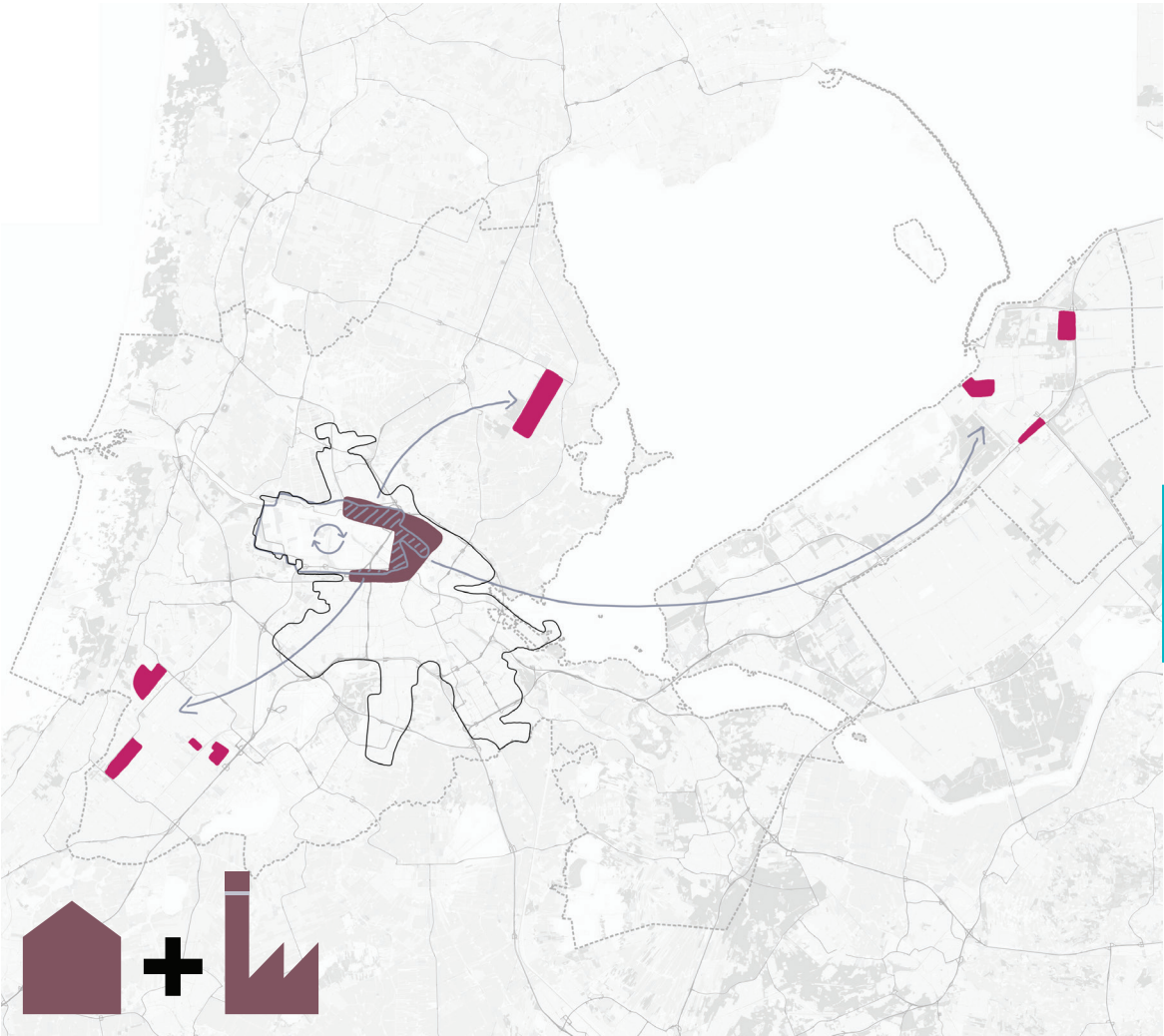
Rg

DJ

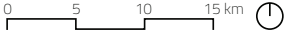
Urban layer



Leverage point



Source: own work, based on Gemeente Amsterdam, 2021

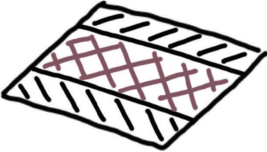


What should the region do differently?

SETTLEMENT & INDUSTRY

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Zoning creates the basis for the integration of production and residential functions in order to minimize distances and ecological impacts and to incentivize community-based forms of working and living.



Precondition for: C1, C6, C12, C13, C21, C25, N13, N22
Balance with: C14
Use with: R3

Values


Rg

DJ

Urban layer

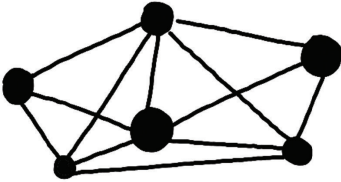


Leverage point



R4

POLYCENTRICITY



A polycentric regional structure increases resilience and equitable access to functions.

Connected with: C6, R22
Precondition for: R9
Balance with: C23



Values

Rg


DJ

Re

Urban layer

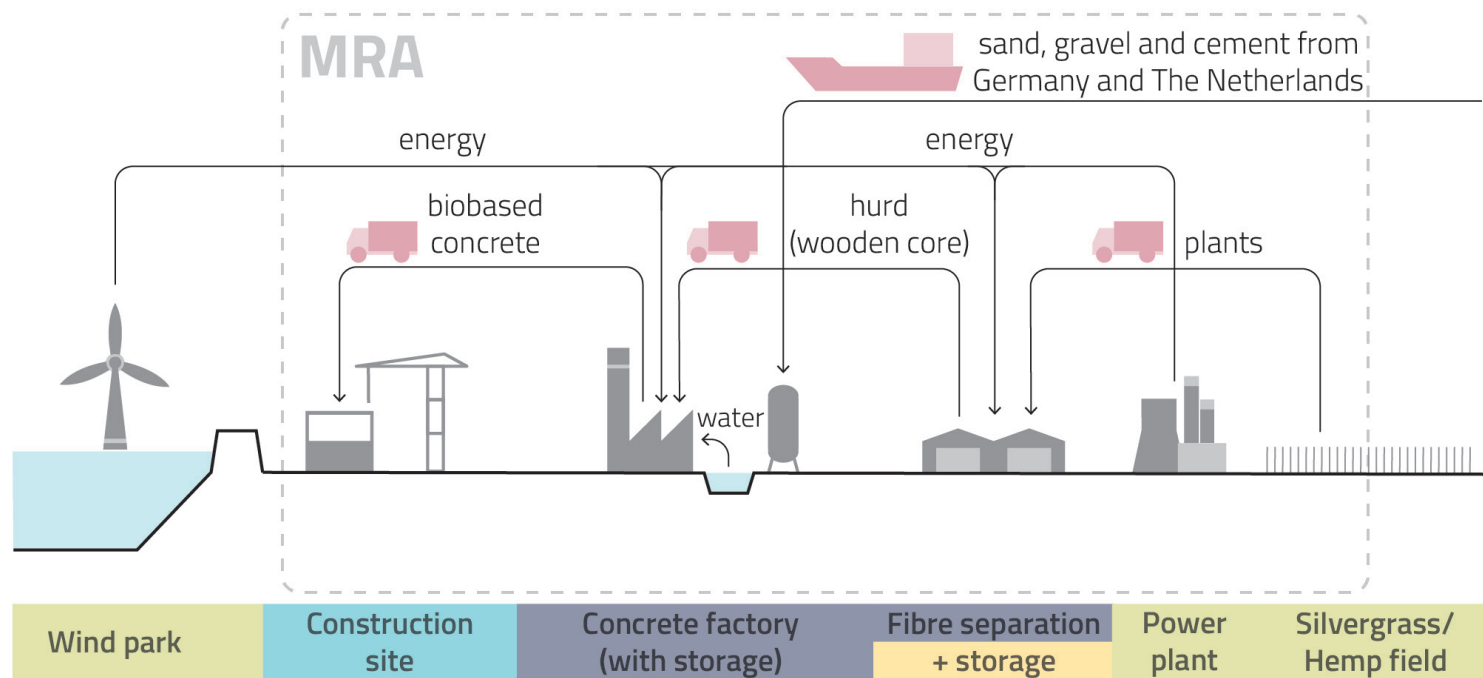


Leverage point

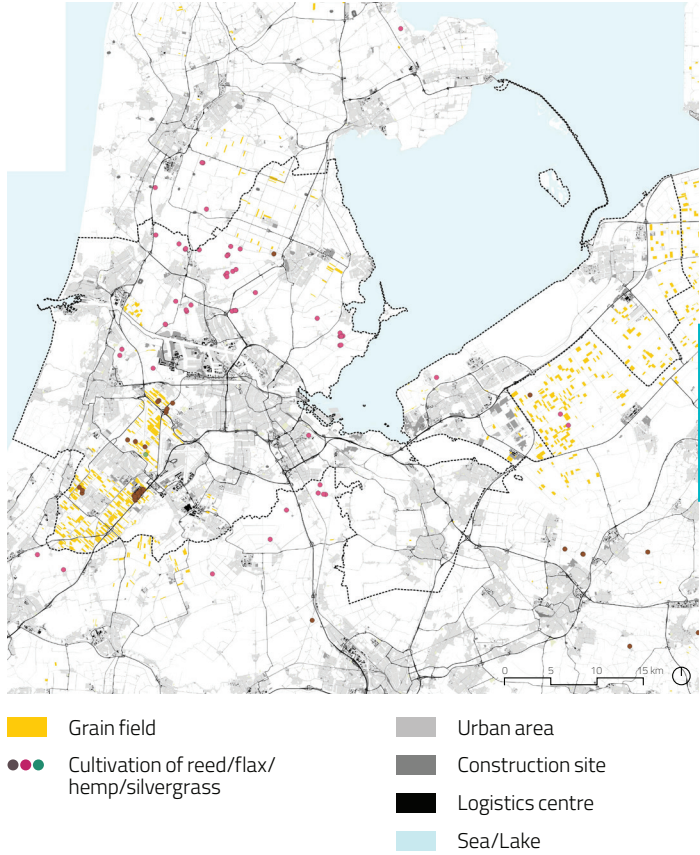




Future building materials



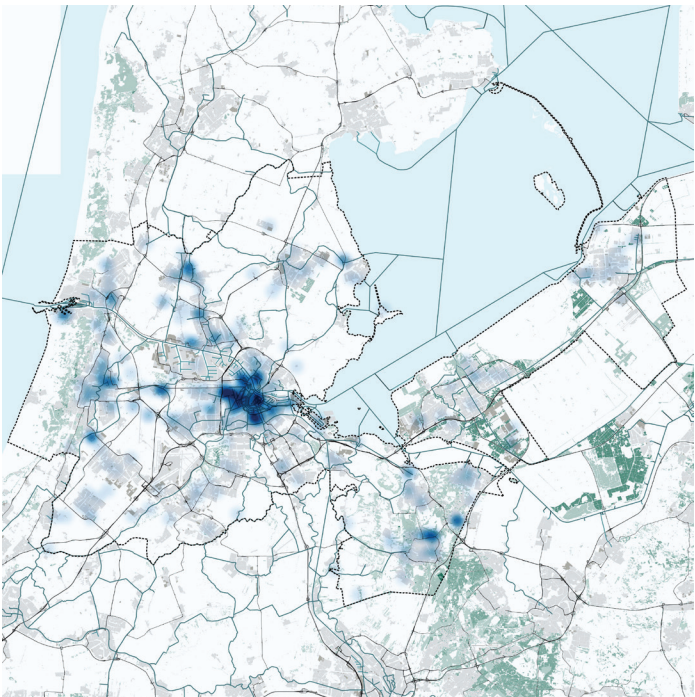
SOURCING



Section: own work, based on van der Schuit et al., 2023 and van der Velde & van Leeuwen, 2019; Map: own work, based on Beheer PDOK, 2024 and Rijksdienst voor ondernemend Nederland, 2022

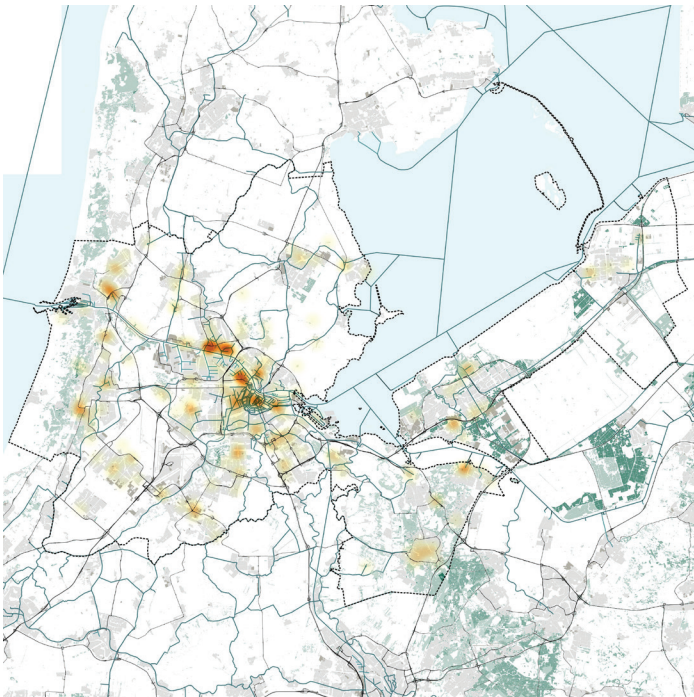
Future building materials

PROCESSING

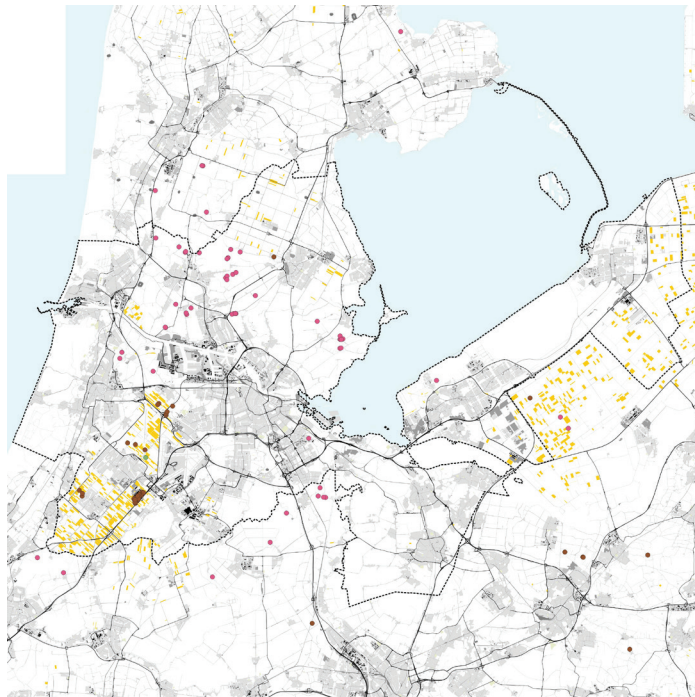


- Timber yield of the forest (0-12 m³/ha)
- Main road
- Shipping canals
- MRA boundary

RETAIL



SOURCING




- Grain field
 - Cultivation of reed/flax/hemp/silvergrass
 - Urban area
 - Construction site
 - Logistics centre
 - Sea/Lake
- 0 5 10 15 km

Maps: own work, based on Beheer PDOK, 2024, Stichting LISA, 2024, Rijksdienst voor ondernemend Nederland, 2022, CBS, 2022


Where is the region headed?

INFRASTRUCTURE

C25 SLOW MOBILITY



C31 PUBLIC TRANSPORT



Promoting the use of public transport decreases transport emissions and shifts mobility towards collective and more accessible modes of transportation.

Connected with: C23, C25, N18

Use with: R11


Values

Rg Su Co Re

Urban layer

Leverage point

R22 RENEWABLE ENERGY



Renewable energy (except solar energy) can be sourced regionally as well as decentral and causes less emissions than conventional energy sources.

Precondition for: P16

Use with: R4, R6

Values

Rg DJ Re

Urban layer


Leverage point



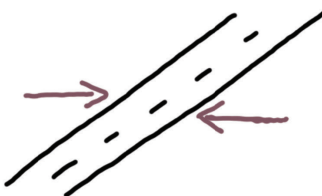
What should the region do differently?

INFRASTRUCTURE

R22RENEWABLE ENERGY



C23RIGHT-SIZE INFRASTRUCTURE



Tailoring infrastructure to the needs of a regional economy limits resource use and promotes sufficiency-based development at a regional scale.


Connected with: R23, C31
Precondition for: C1, C25
Balance with: R10, N18

Values

RgSu

Urban layer

Leverage point



A map of a region showing infrastructure and renewable energy sources. The map displays a network of roads and rivers. Wind turbines are marked with icons across the region, indicating areas for renewable energy. A scale bar at the bottom right shows distances of 0, 5, 10, and 15 km. A clock icon is also present.

50 / 69

Where is the region headed?

R23

SPACES FOR WATER



R24

ECOLOGICAL CORRIDOR



Ecological corridors through the urban fabric create buffer zones and create spaces for ecosystems to thrive.

Connected with: R23, R26, C18

Values

Co Re

Urban layer



Leverage point



GREEN & BLUE



Urban ecological corridor

Forest

Agriculture

Wetland

Waterbody

Source: own work, based on Gemeente Amsterdam, 2021

0 5 10 15 km

51 / 69

What should the region do differently?

GREEN & BLUE

R23 SPACES FOR WATER



R24 ECOLOGICAL CORRIDOR



Ecological corridors through the urban fabric create buffer zones and create spaces for ecosystems to thrive.

Connected with: R23, R26, C18

Values


Co Re

Urban layer




Leverage point

R26 FORESTATION



R28 REGENERATIVE AGRICULTURE



Regenerative agricultural practices help restore depleted soil.


Connected with: C27
Precondition for: P15

Use with: R25

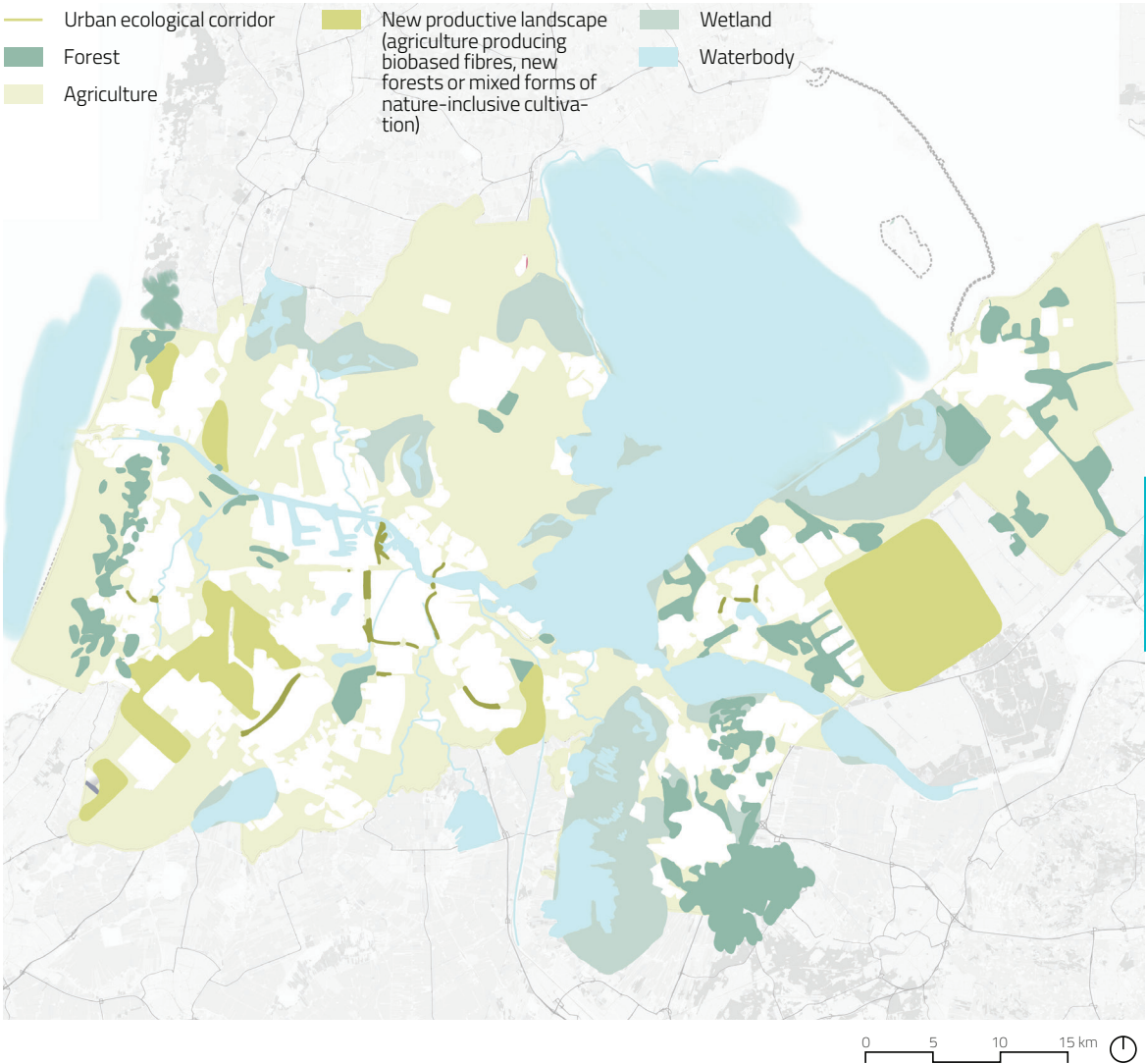
Values

Rg Re

Urban layer



Leverage point




What should the region do differently?

SOCIAL

C9

SHARED DECISION-MAKING ABOUT DEVELOPMENT



Involving the local community actively in the decision-making process around urban development is inclusive and promotes community cohesion.


Connected with: R15, C7, C28, N24

Use with: C13, C19, N8

Values

DJ	Co
----	----


Urban layer



Leverage point

C2

MUNICIPALLY-OWNED LAND



If the municipality owns the land, it is easiest to realize public interests on that land.

Connected with: R1, N1, N24



Precondition for: R7, C26, N7, P4

Use with: R2, C19, N8

Values

Rg	Su	DJ	Co
----	----	----	----

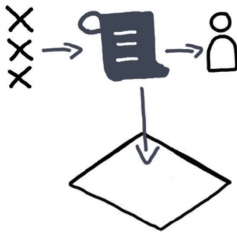
Urban layer



Leverage point

P4

GROUND LEASE



A ground lease allows the municipality to set conditions for the use of the land.

Connected with: P18


Precondition for: C8, N2, N4, P3

Use with: C2

Values

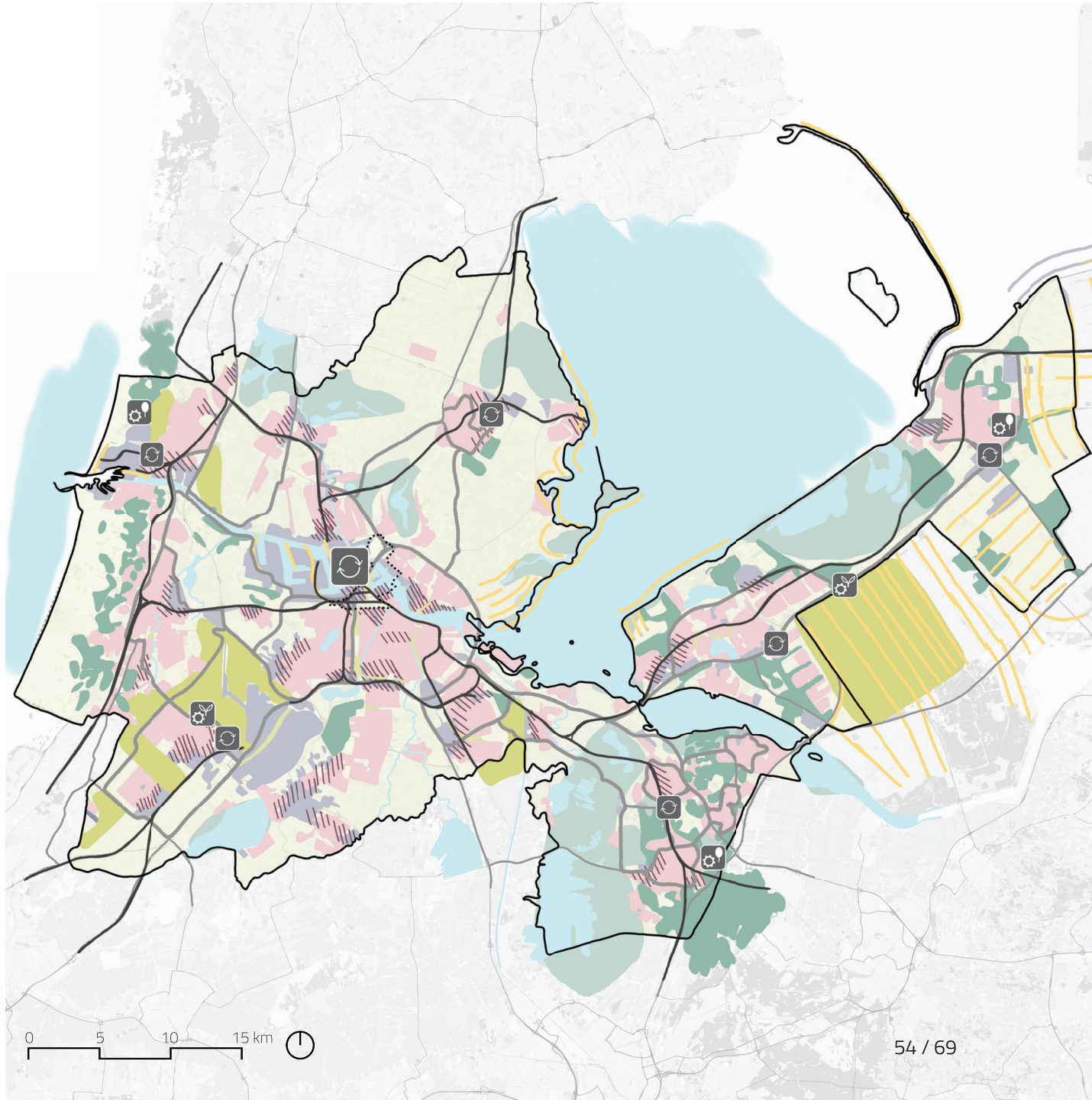
Rg	Su	DJ	Co
----	----	----	----

Urban layer



Leverage point

How would the MRA look?



Legend

Settlement and Industry

- Settlement
- New mixed-use area
- Industry
- Material Hub
- Timber processing
- Fibre processing

Infrastructure

- Road
- Railway
- Waterway
- Expanded wind energy

Green-blue systems

- Urban ecological corridor
- Forest
- Agriculture
- New productive landscape (agriculture producing biobased fibres, new forests or mixed forms of nature-inclusive cultivation)
- Wetland
- Waterbody

Design areas

- MRA
- Haven-Stad

Mixed-use conversion project: Haven-Stad



Source: Gemeente Amsterdam (n.d.)

Municipal vision for Haven-Stad



LEGENDA	
	Grens deelgebied
	Kader Stadspark
	HOV verbinding
	Alternatief tracé HOV verbinding
	HOV Halte
	Fietsverbinding
	Veerverbinding
	PTA zoeklocatie
	Draaicirkel Cruiseschip
	Ankers aan het IJ (Huidig beeldbepalend/ cultureel accent aan het IJ)
	Beeldbepalend pand, object of cultureel accent
	Zoeklocatie toekomstig beeldbepalend/ cultureel accent

Source: Gemeente Amsterdam, 2021

How would Haven-Stad look?

Legend

Settlement and Industry

- Settlement
- Industry
- Material Hub
- Mixed-use area
- Craft centre
- Building
- Flexible common spaces
- Neighbourhood centre

Infrastructure

- Road
- Railway (metro and train)
- Station
- Green slow mobility connection

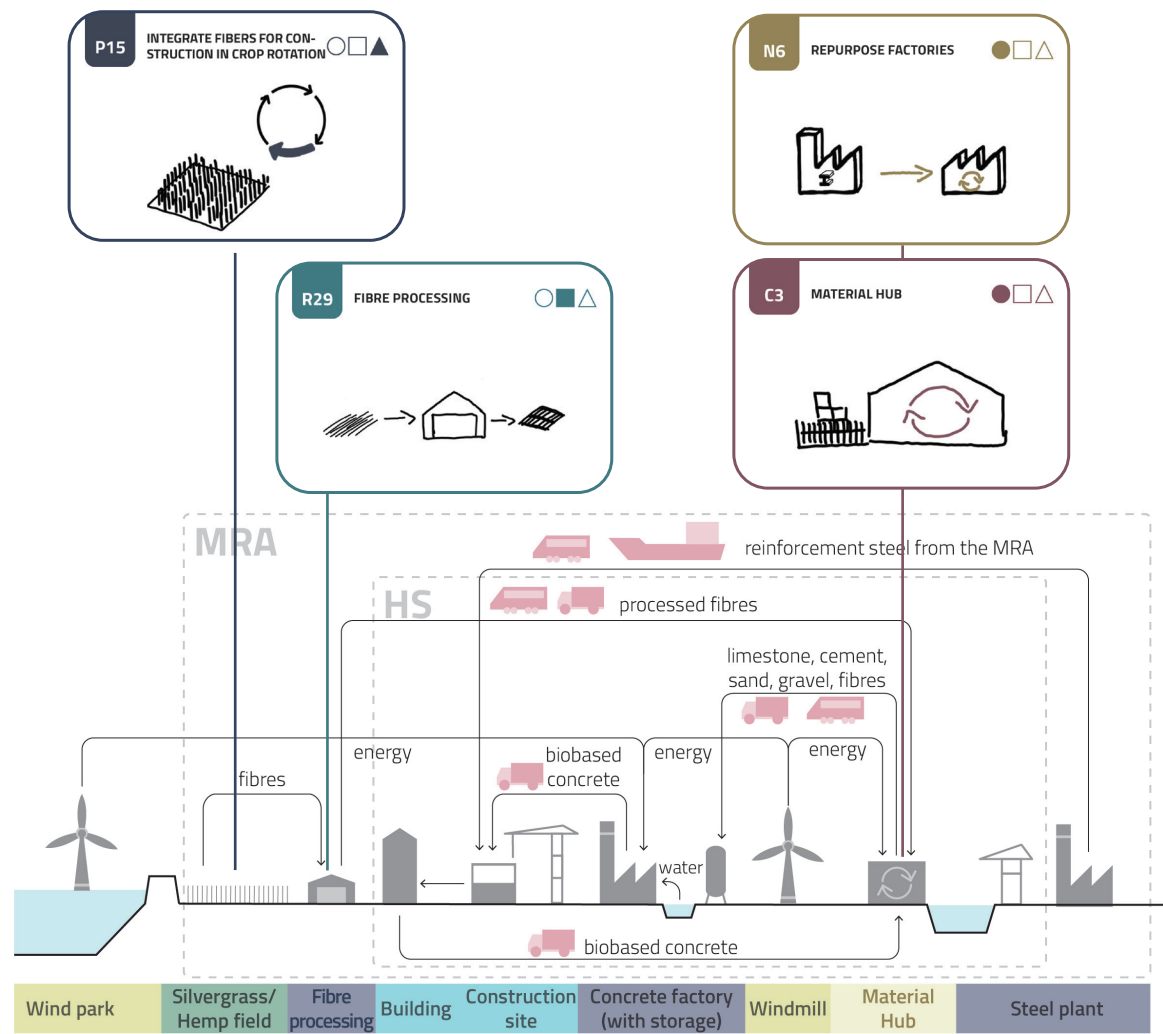
Green-blue systems

- Green commons
- Urban productive landscape (agriculture producing biobased fibres, new forests or mixed forms of nature-inclusive cultivation)
- Waterbody
- Urban forest
- Urban agriculture
- Timber processing
- Fibre processing

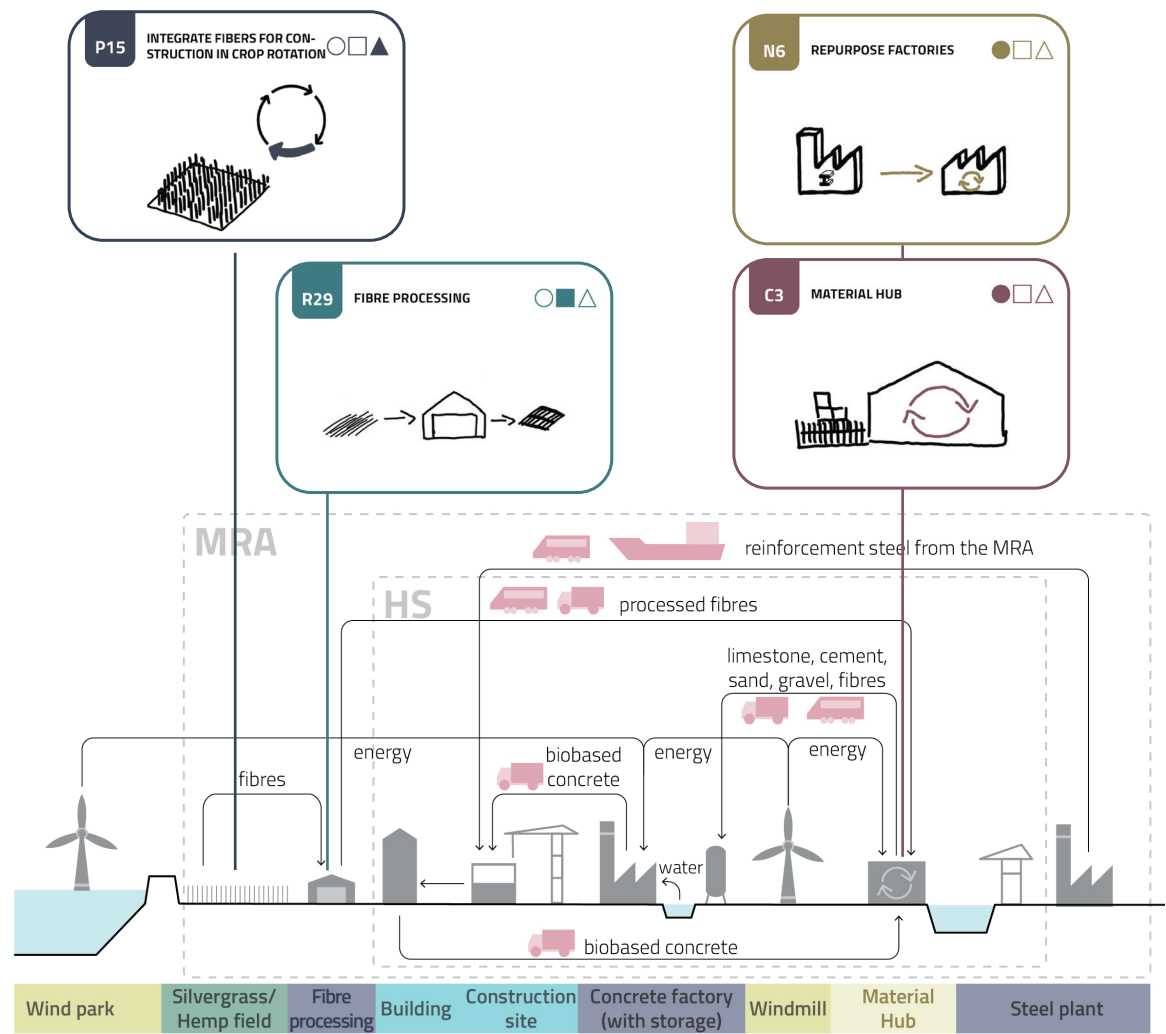


Strategic action

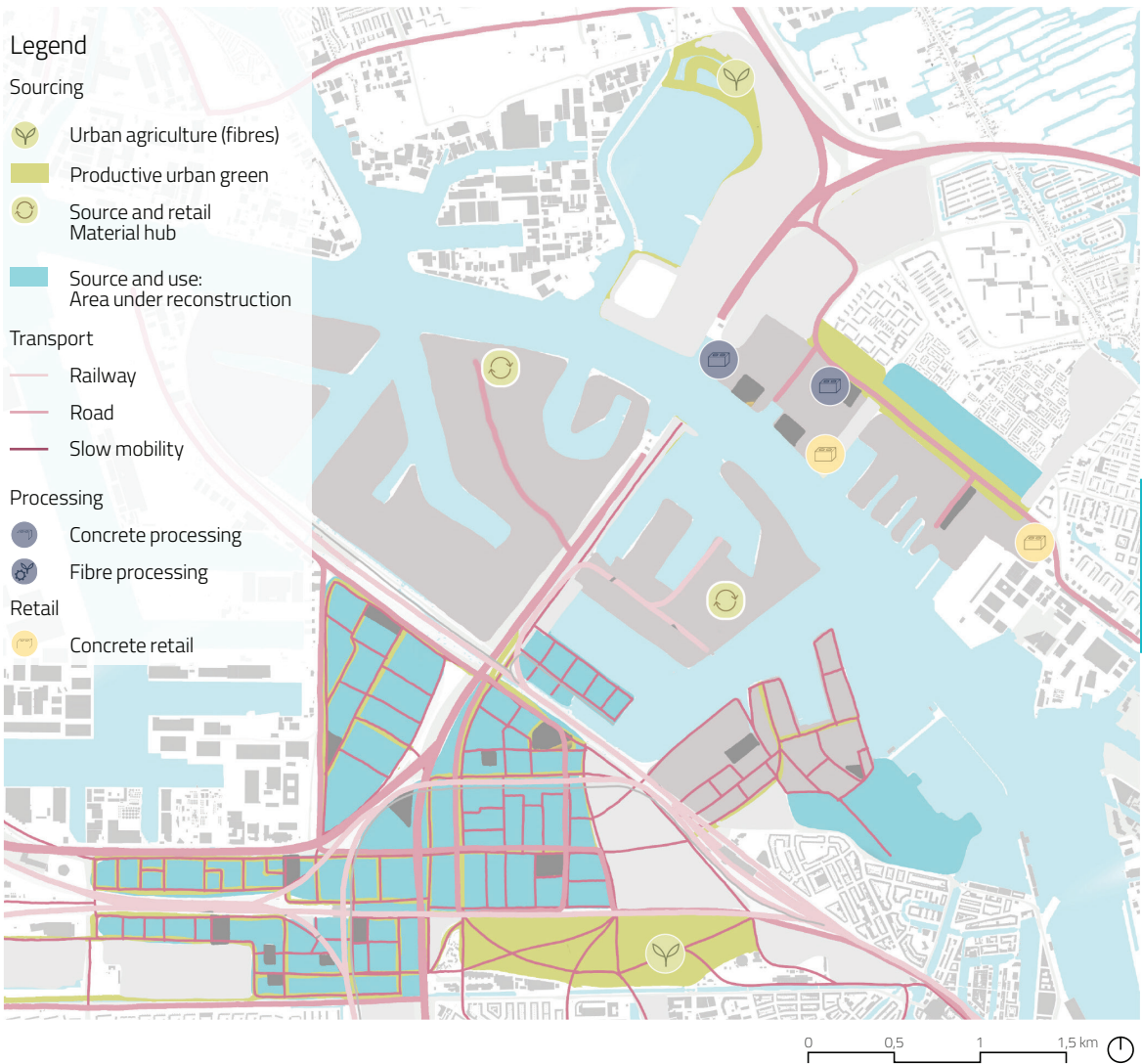
RESERVE SPACE FOR PRODUCTION



Strategic action

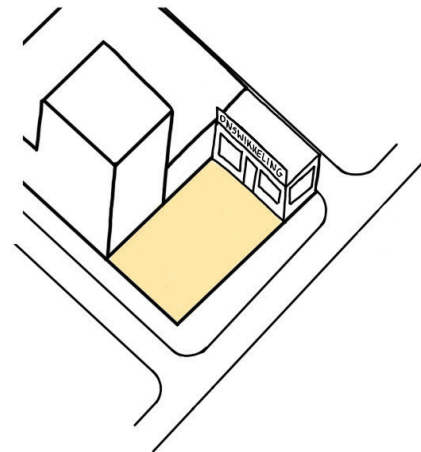
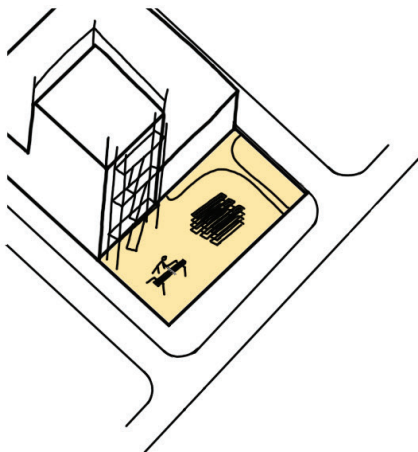
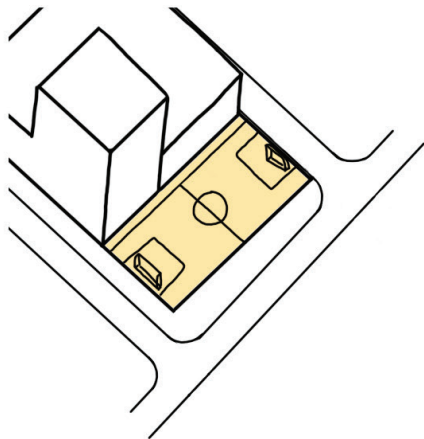


RESERVE SPACE FOR PRODUCTION



Strategic action

FLEXIBLE SPACES



N11

COLLECTIVE URBAN GREEN

An isometric line drawing of two buildings with a green-colored courtyard area in front of them. The area contains some small furniture or structures.

N17

ON-SITE MANUFACTURING

An isometric line drawing of a building with a yellow-colored courtyard or plaza area in front of it. A person is shown sitting on a bench in the courtyard.

C9

SHARED DECISION-MAKING ABOUT DEVELOPMENT

An isometric line drawing of a building with a yellow-colored courtyard or plaza area in front of it. A person is shown sitting on a bench in the courtyard.

How would Haven-Stad look?



Ground ownership actions

- Do not lease to safeguard commons
- Integrate community ownership into public ownership
- Mix of public ownership and private ground lease

How would Haven-Stad look?

Legend

Settlement and Industry

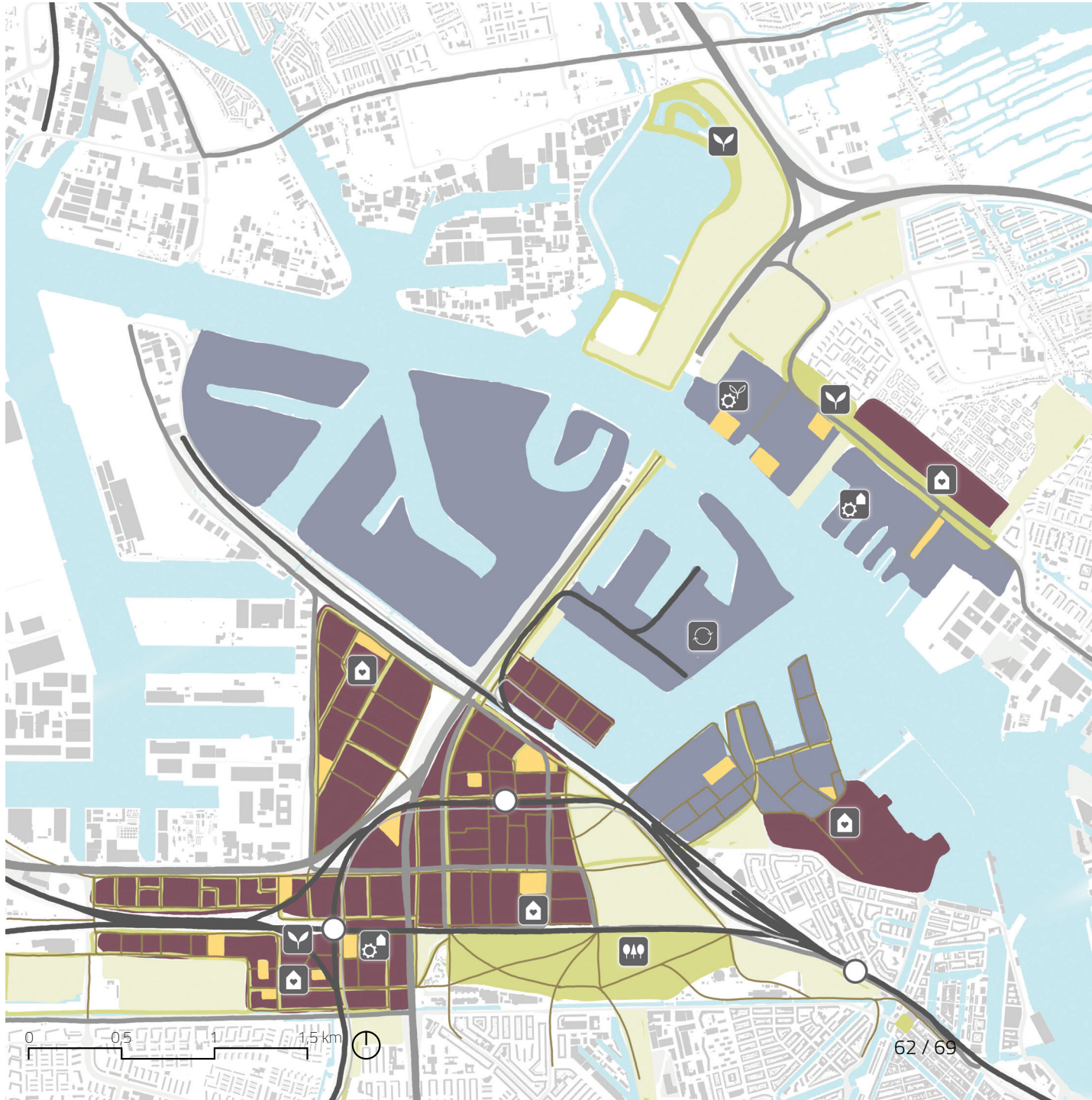
- Settlement
- Industry
- Material Hub
- Mixed-use area
- Craft centre
- Building
- Flexible common spaces
- Neighbourhood centre

Infrastructure

- Road
- Railway (metro and train)
- Station
- Green slow mobility connection

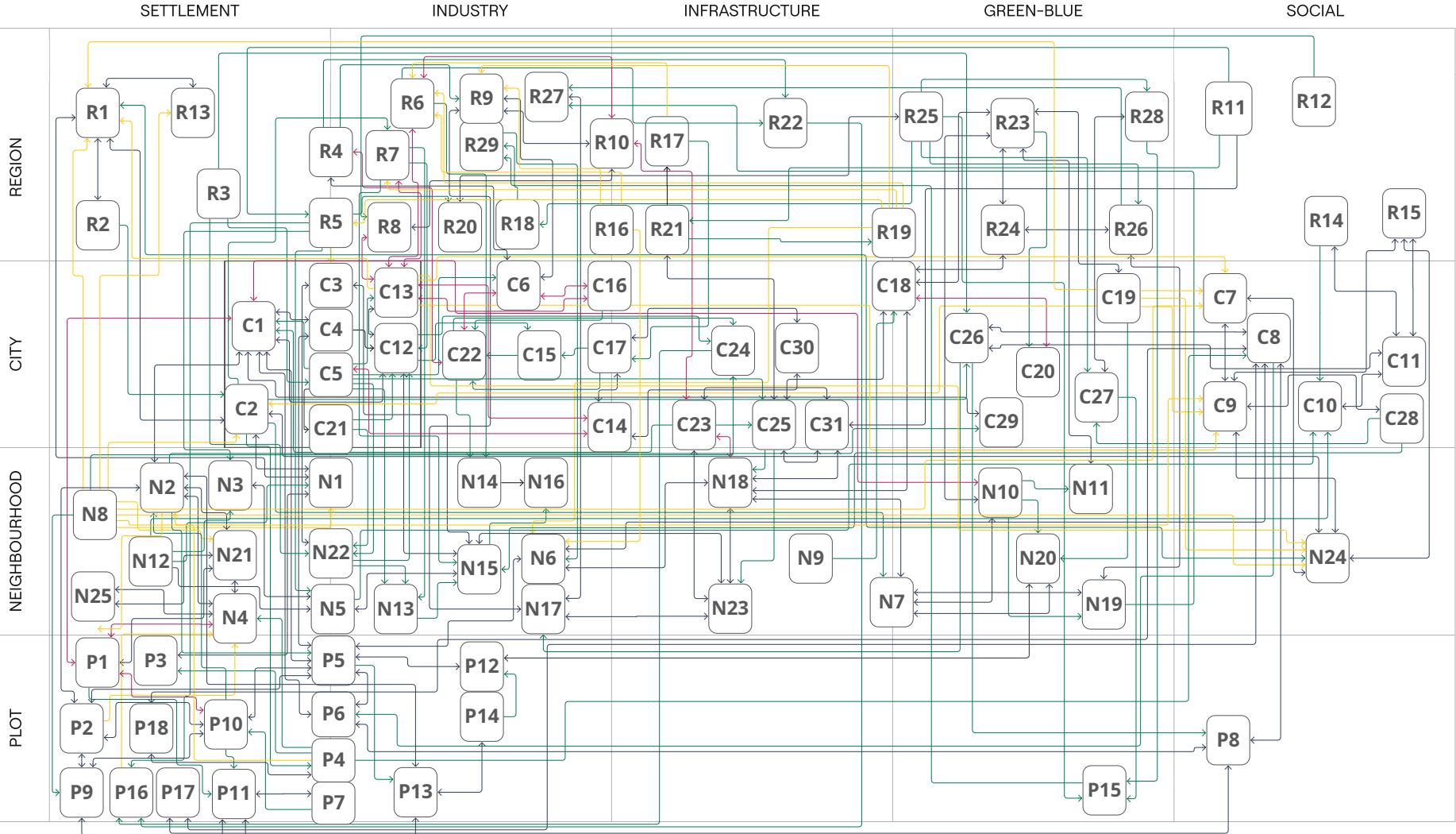
Green-blue systems

- Green commons
- Urban productive landscape (agriculture producing biobased fibres, new forests or mixed forms of nature-inclusive cultivation)
- Waterbody
- Urban forest
- Urban agriculture
- Timber processing
- Fibre processing



Pattern field

CONNECTIONS

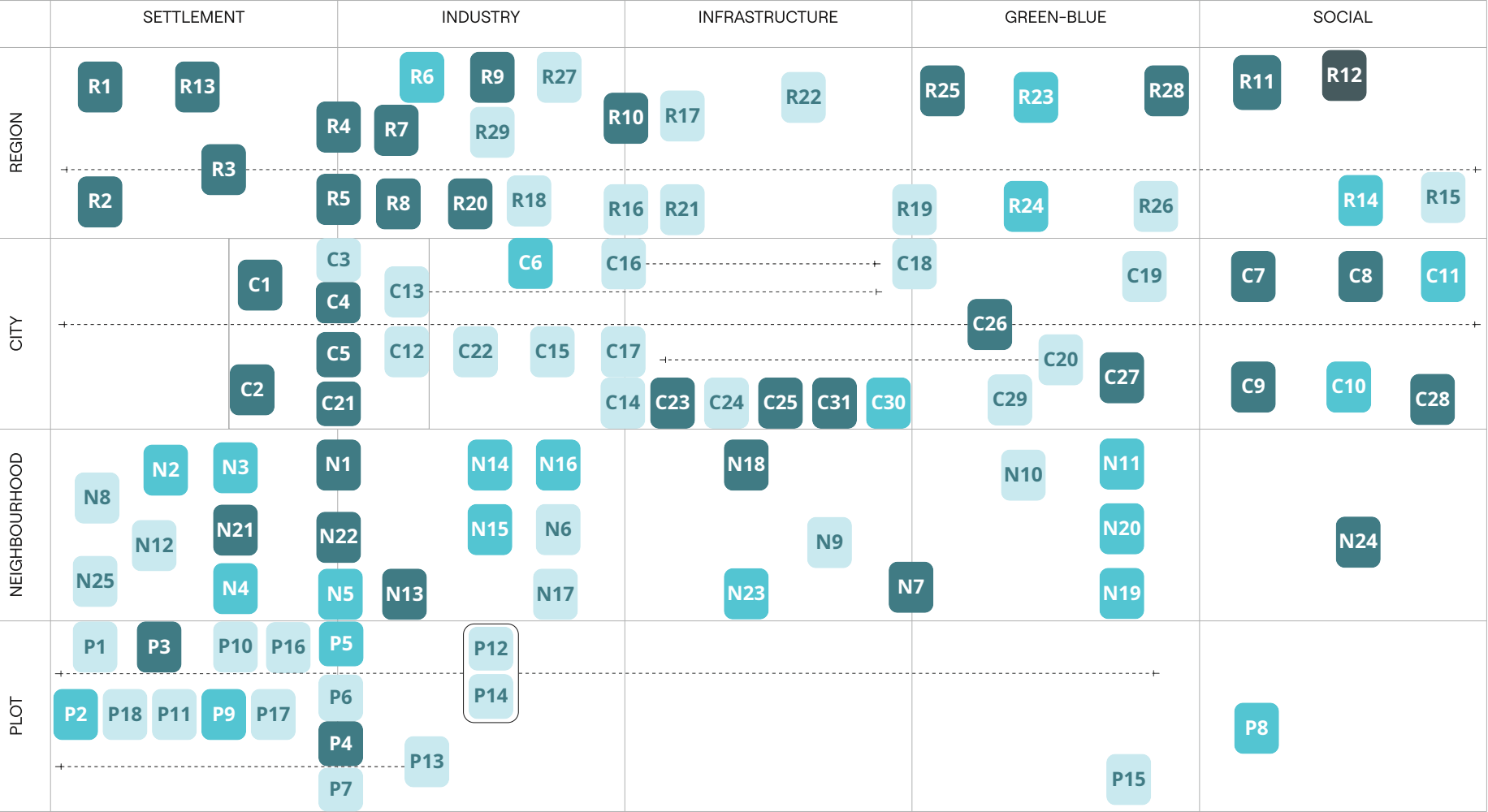


Legend

- Pattern spanning over multiple categories
- Connection
- Precondition
- Patterns can only be used together
- Need to balance

Pattern field

LEVERAGE



Legend

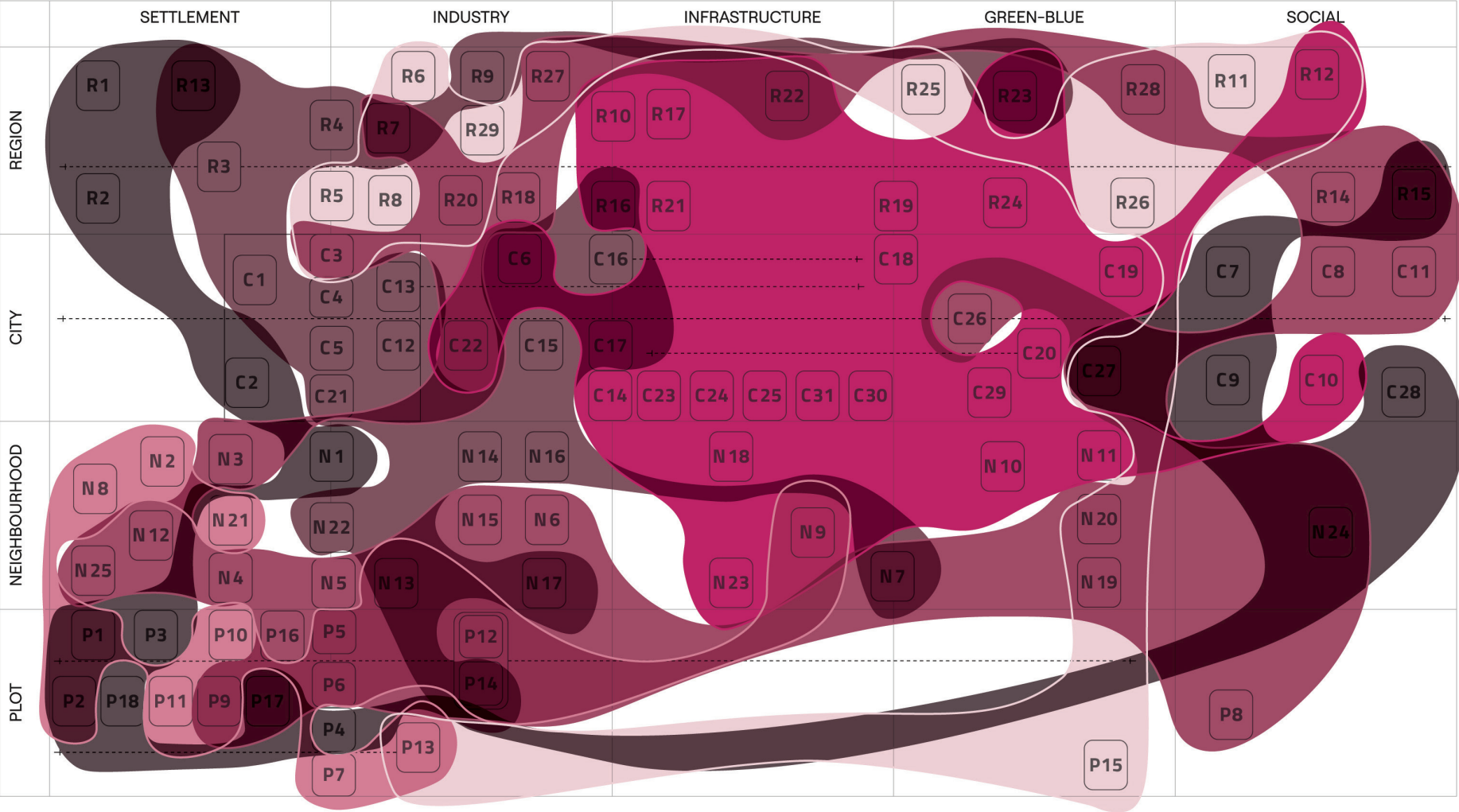
--- Pattern spanning over multiple categories

Type of leverage point

- Parameter
- Feedbacks
- Design
- Intent

Pattern field

DIMENSIONS



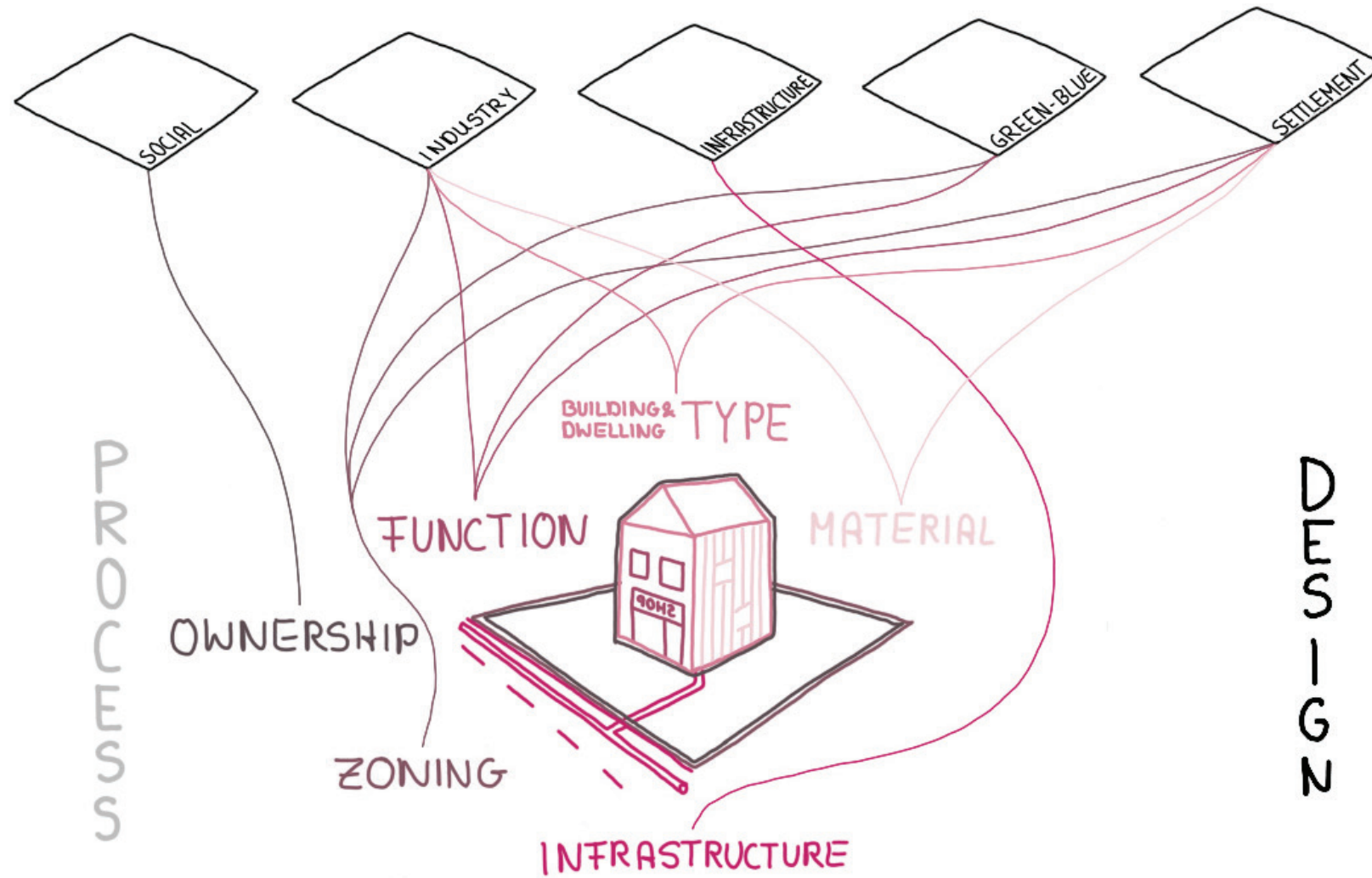
Legend

--- Pattern spanning over multiple categories

Dimensions of degrowth action

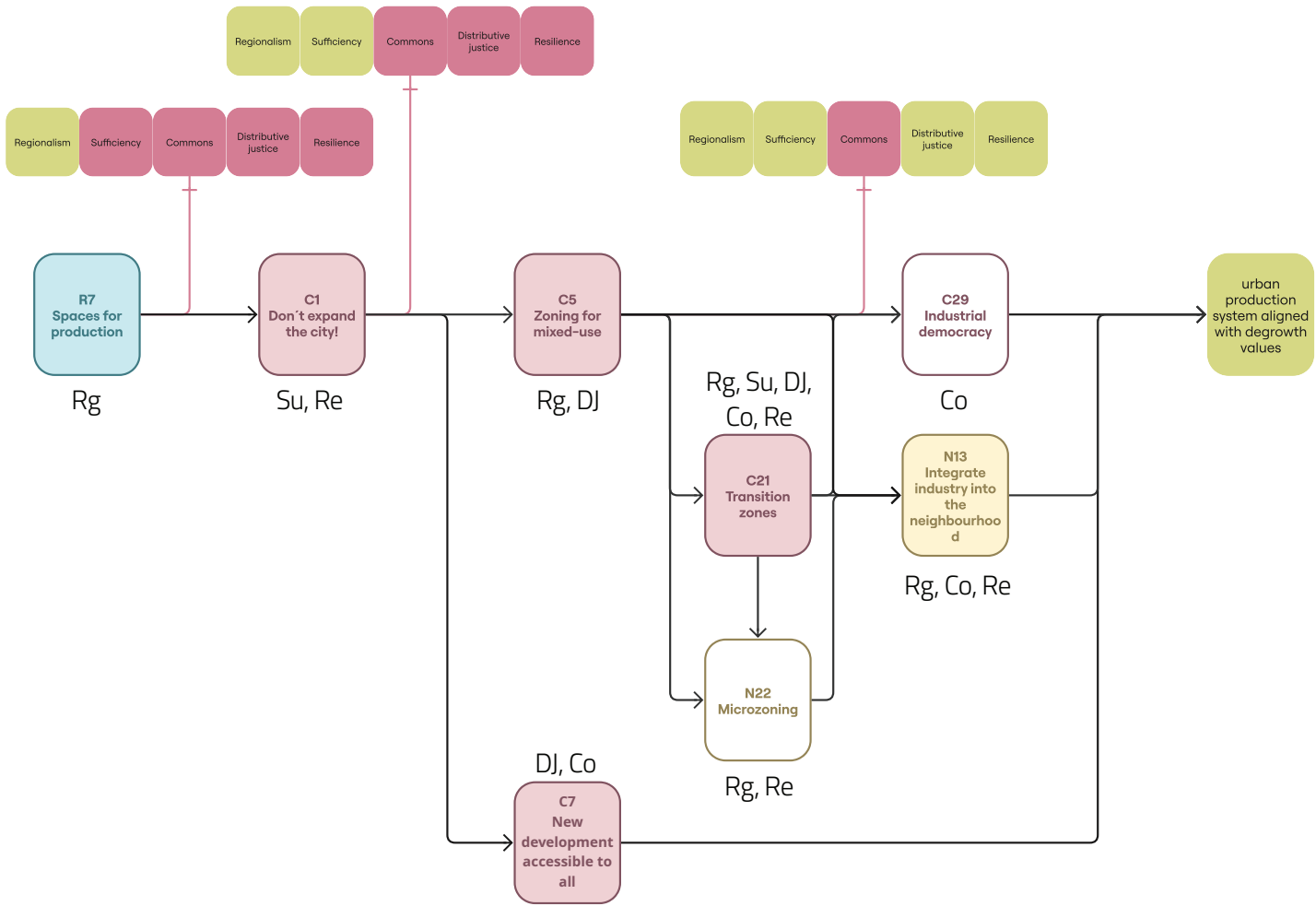
- Material
- Building & Dwelling type
- Infrastructure
- Function
- Zoning
- Ownership

Dimensions of degrowth action



Transformation pathway

FUNCTION



Legend

Leverage point

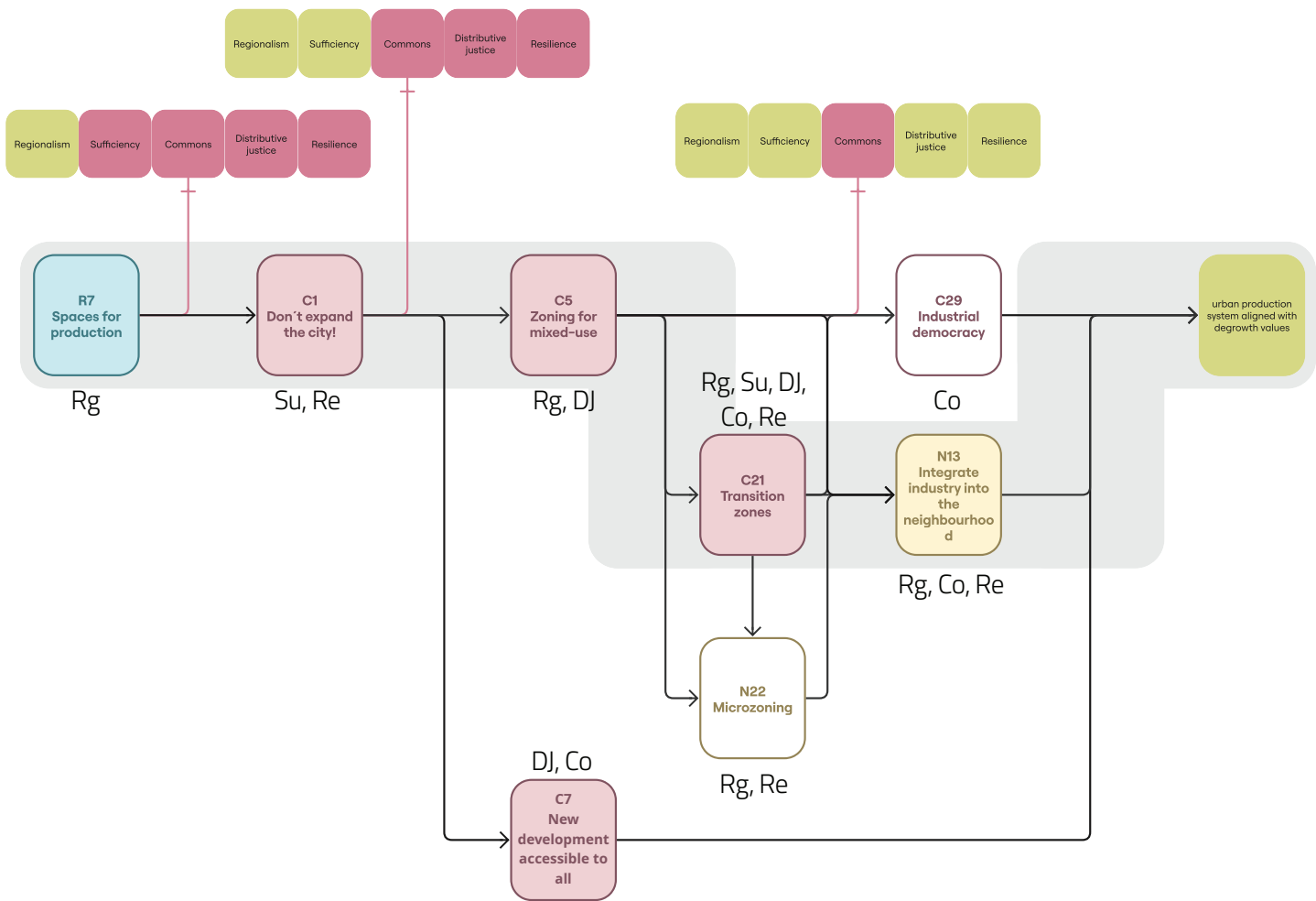
- Parametre
- Feedbacks
- Design
- Intent

Degrowth value

- Rg Regionalism
- Su Sufficiency
- DJ Distributive Justice
- Co Commons
- Re Resilience

Transformation pathway

FUNCTION



Legend

Leverage point

- Parametre
- Feedbacks
- Design
- Intent

Degrowth value

- Rg Regionalism
- Su Sufficiency
- DJ Distributive Justice
- Co Commons
- Re Resilience

Conclusion

How could **degrowth values** inform metropolitan development to overcome its **growth dependency** and increase **socio-ecological resilience** in the **Metropolitan Region of Amsterdam (MRA)**?

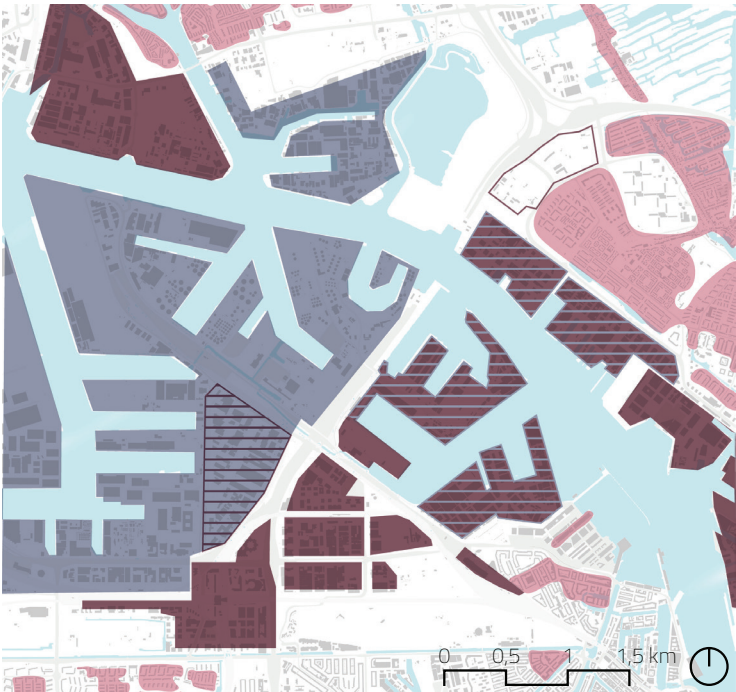


Thank you!

Comparison Haven-Stad plans

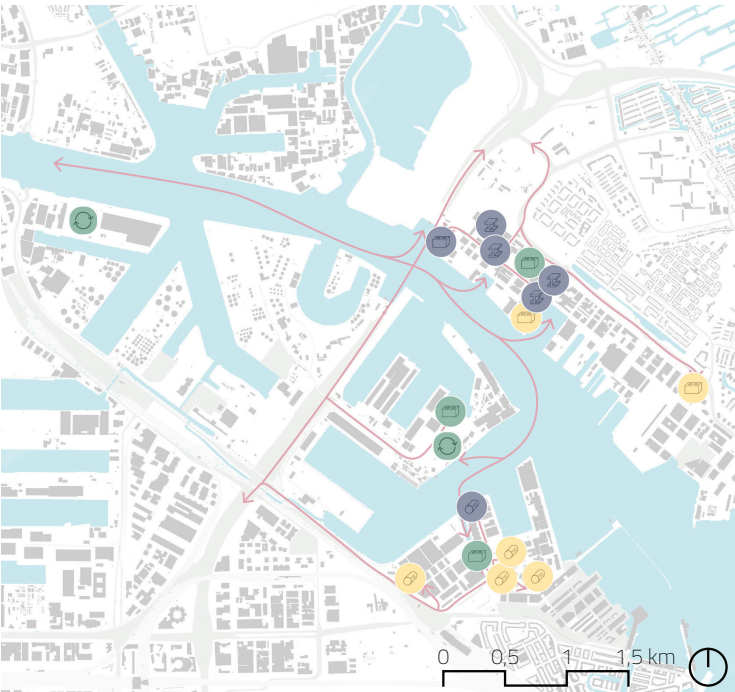
Actions required

- Keep industry and logistics
- Keep industry instead of creating mixed use area
- Create mixed-use area
- Create mixed-use area instead of industry
- Potential densification areas for further housing
- Keep green area



Location of

- Concrete processing
- Concrete retail
- Concrete recycling
- Steel processing
- Timber retail
- Construction hub
- Transport flow



Decisions adopted

- Bike network
- Extended metro line

Decisions rejected

- Possible location cruise ship terminal
- Road

Added infrastructure

- Slow mobility network
- Flexible space



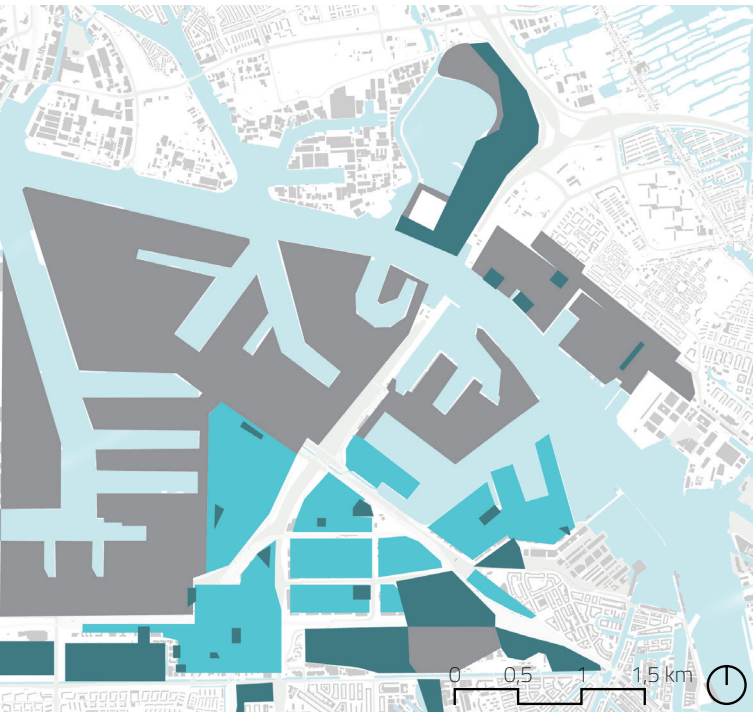
Comparison Haven-Stad plans

Types of green and blue infrastructure

- Keep green space
- Green common
- Productive green
- Green infrastructure connection
- Very low flood probability
- Medium high flood probability
- Waterbody

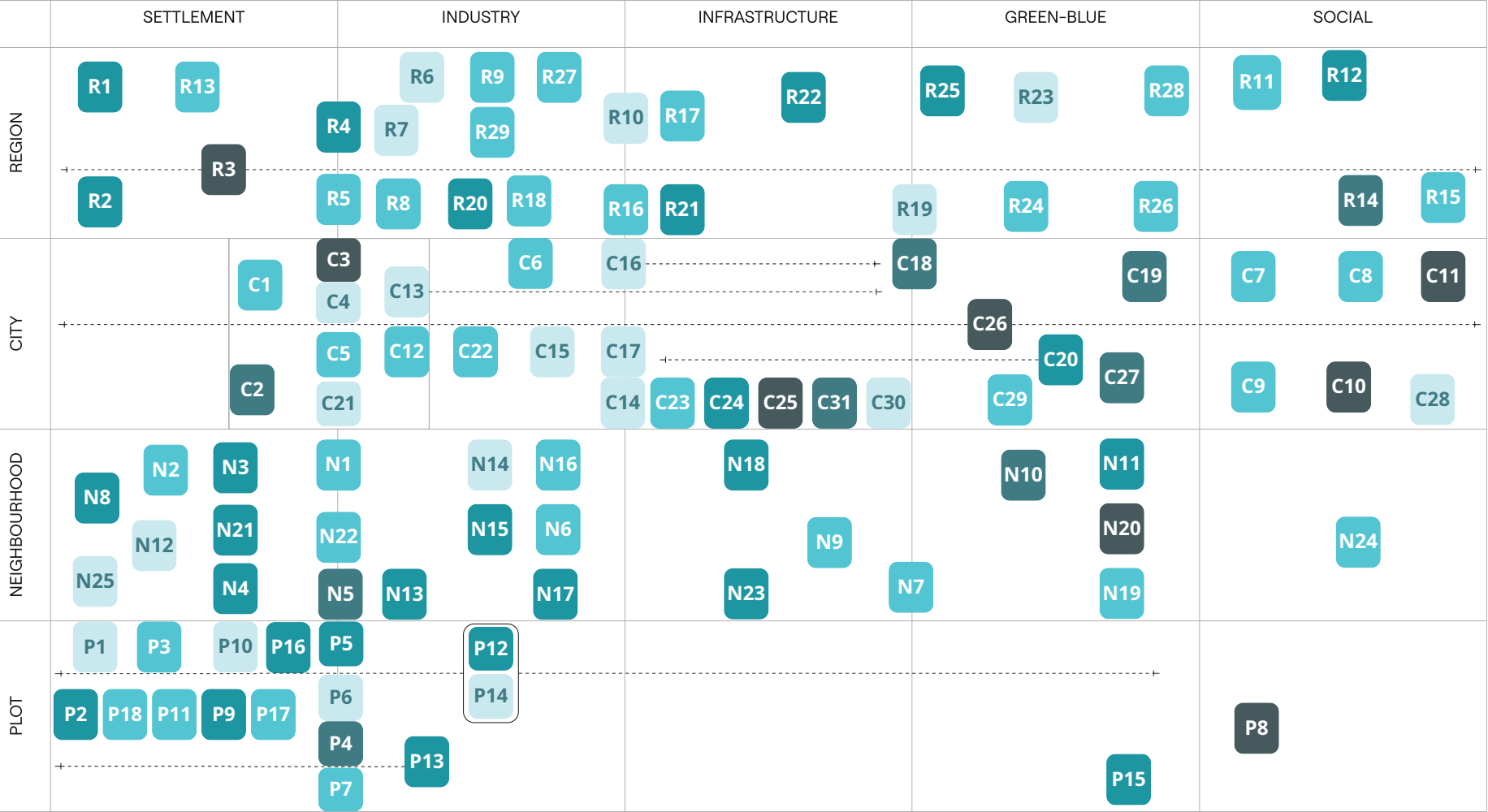
Ownership

- Do not lease to safeguard commons
- Integrate community ownership into public ownership
- Mix of public ownership and private ground lease



Pattern field

VALUES



Legend

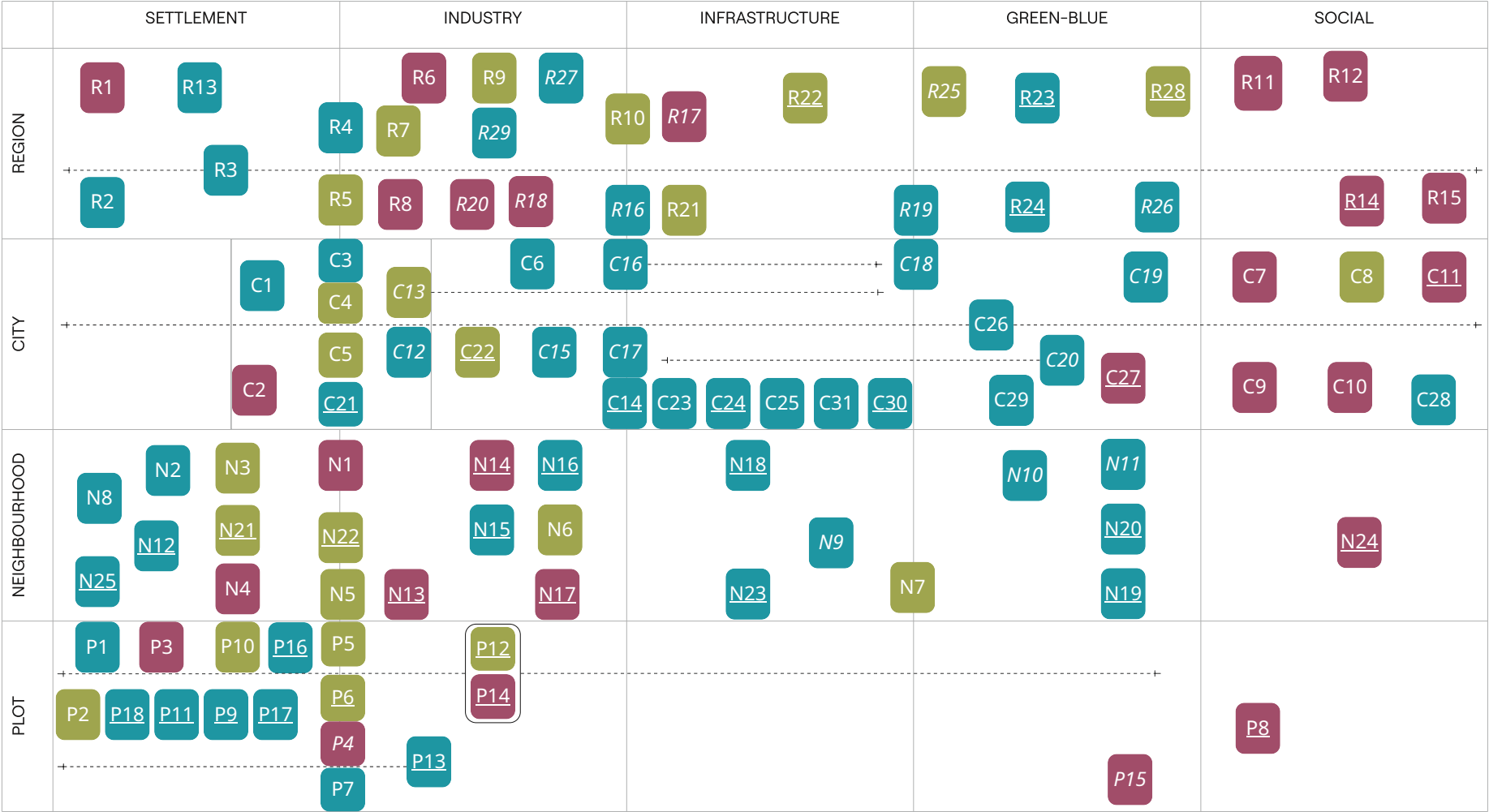
--- Pattern spanning over multiple categories

Amount of values the pattern relates to

- 1
- 2
- 3
- 4
- 5

Pattern field

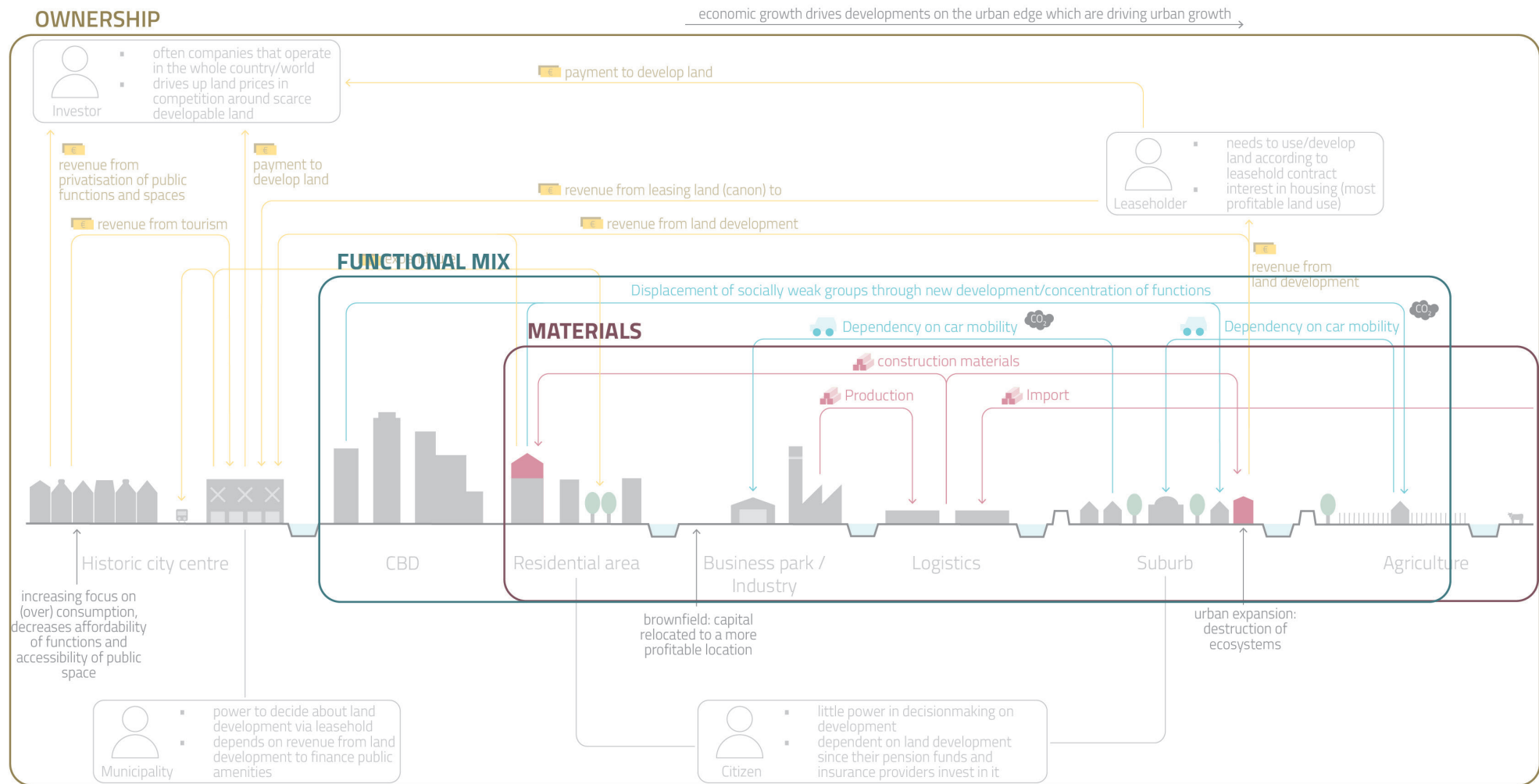
ACTION & ORIGIN



Legend

- Pattern spanning over multiple categories
- Type of action the pattern requires
 - Design
 - Process
 - Design and Process
- Pattern origin
 - Literature
 - Analysis
 - Research by design

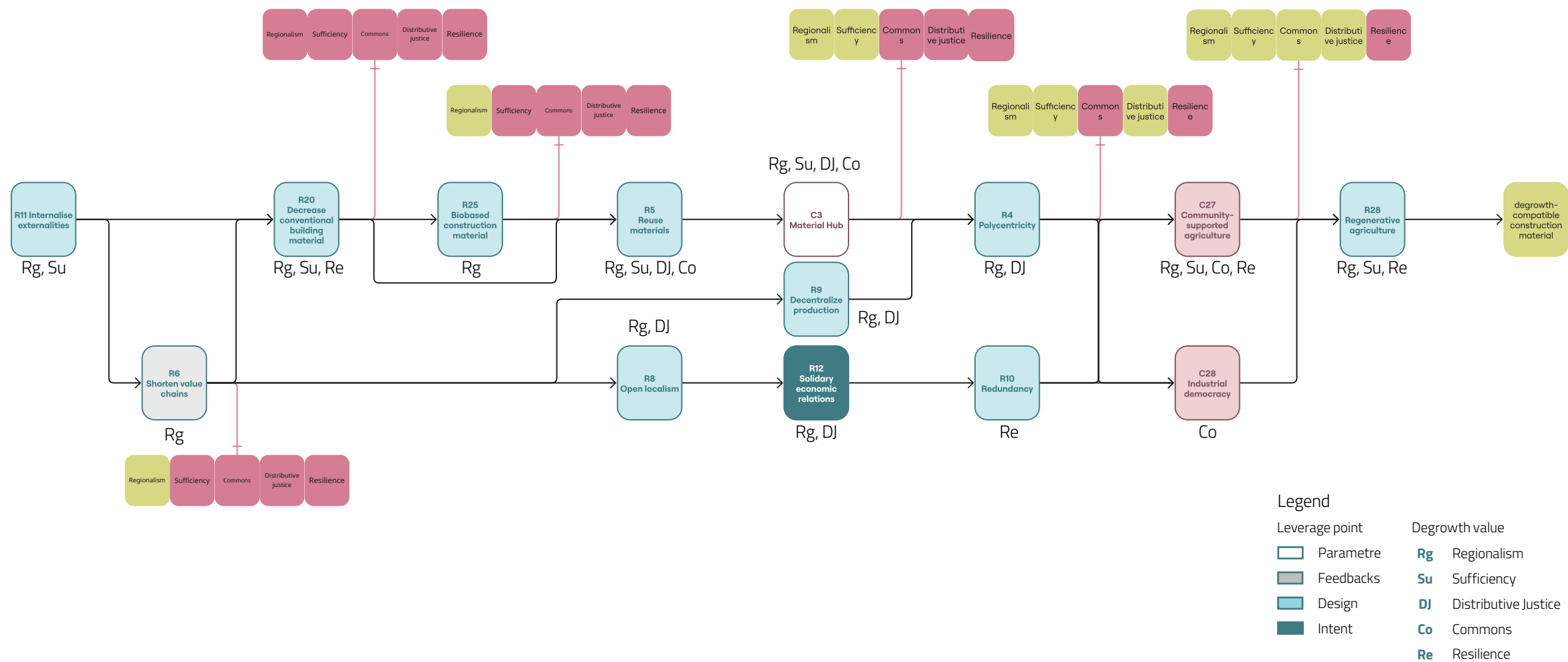
Conclusion



Sources: own work, based on BURA & Crimson, 2024; Durrant et al., 2023; Gemeente Amsterdam, 2017; Savini, 2021; Xue, 2022

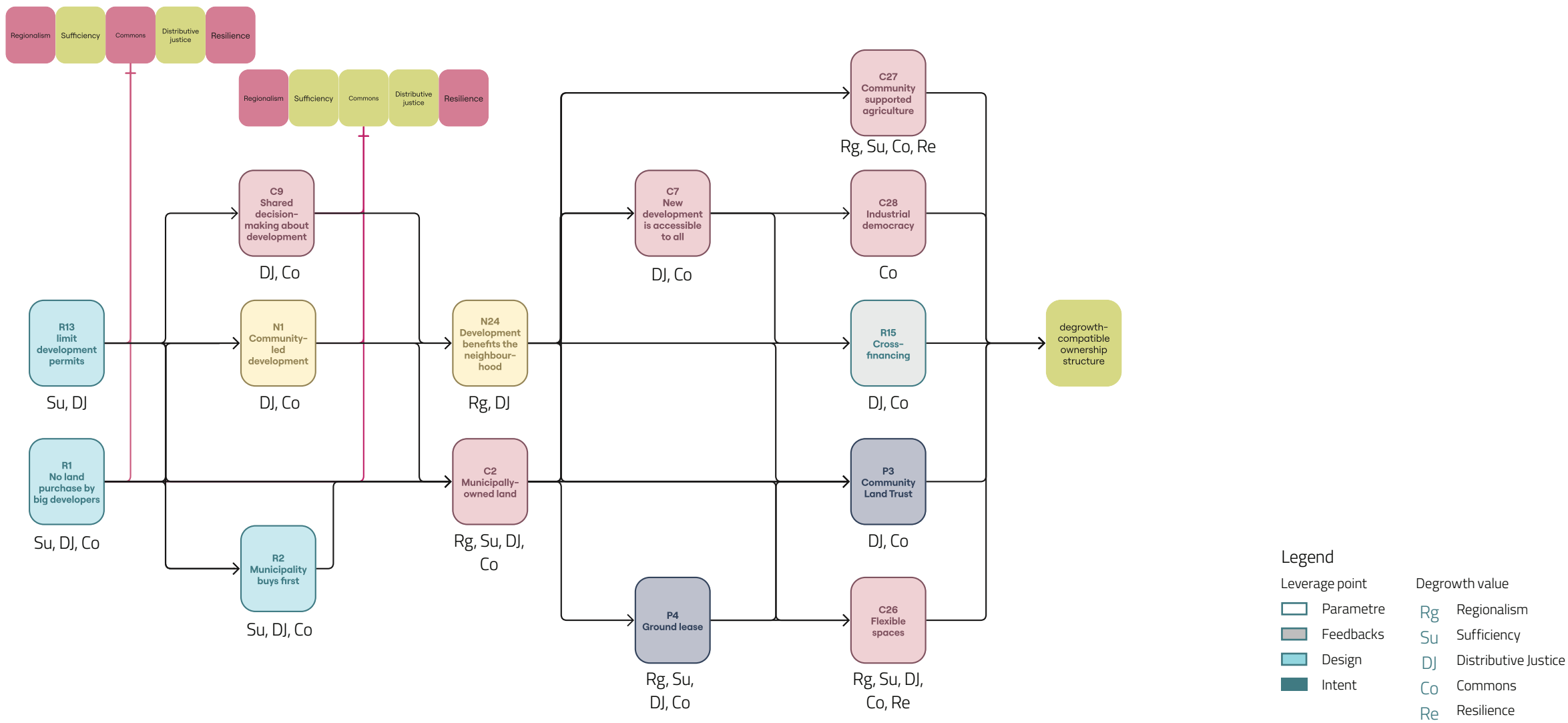
Transformation pathway

MATERIAL



Transformation pathway

OWNERSHIP



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