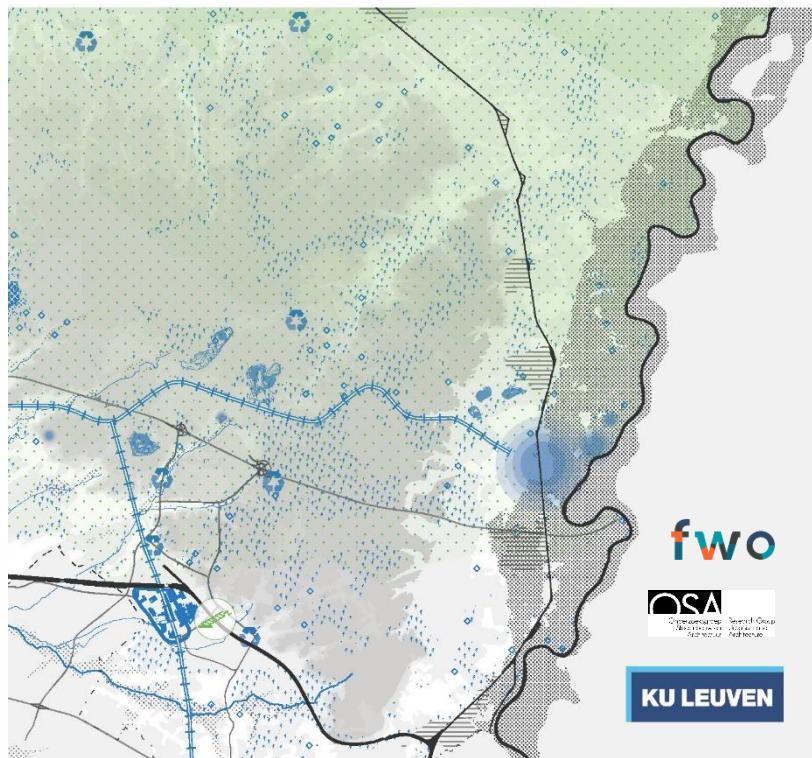


Circular Economy Transition in Flanders

Julie Marin

An Urban Landscape
Design Contribution

SUPERVISOR
Prof. Bruno De Meulder



Bron: *Urban Design Workshop Houthalen-Helchteren*, coordinated by OSA KU Leuven Marin, Motti, De Meulder 2016

Julie Marin
Onderzoeksgroep stedenbouw en
architectuur KU Leuven
Departement Architectuur KU Leuven

13 Juni 2019
Operatie Circulatie VRP Leuven

Vier agenda's voor circulariteit

I – INTRO

- circulaire economie?

II – WAT MAAKT EEN PLEK CIRCULAIR?

- vier interpretaties van circulariteit

III – HOE CIRCULAIRE STEDEN EN REGIO'S ONTWERPEN?

- *urban landscape design* instrumenten voor circulariteit

CIRCULAIRE ECONOMIE?

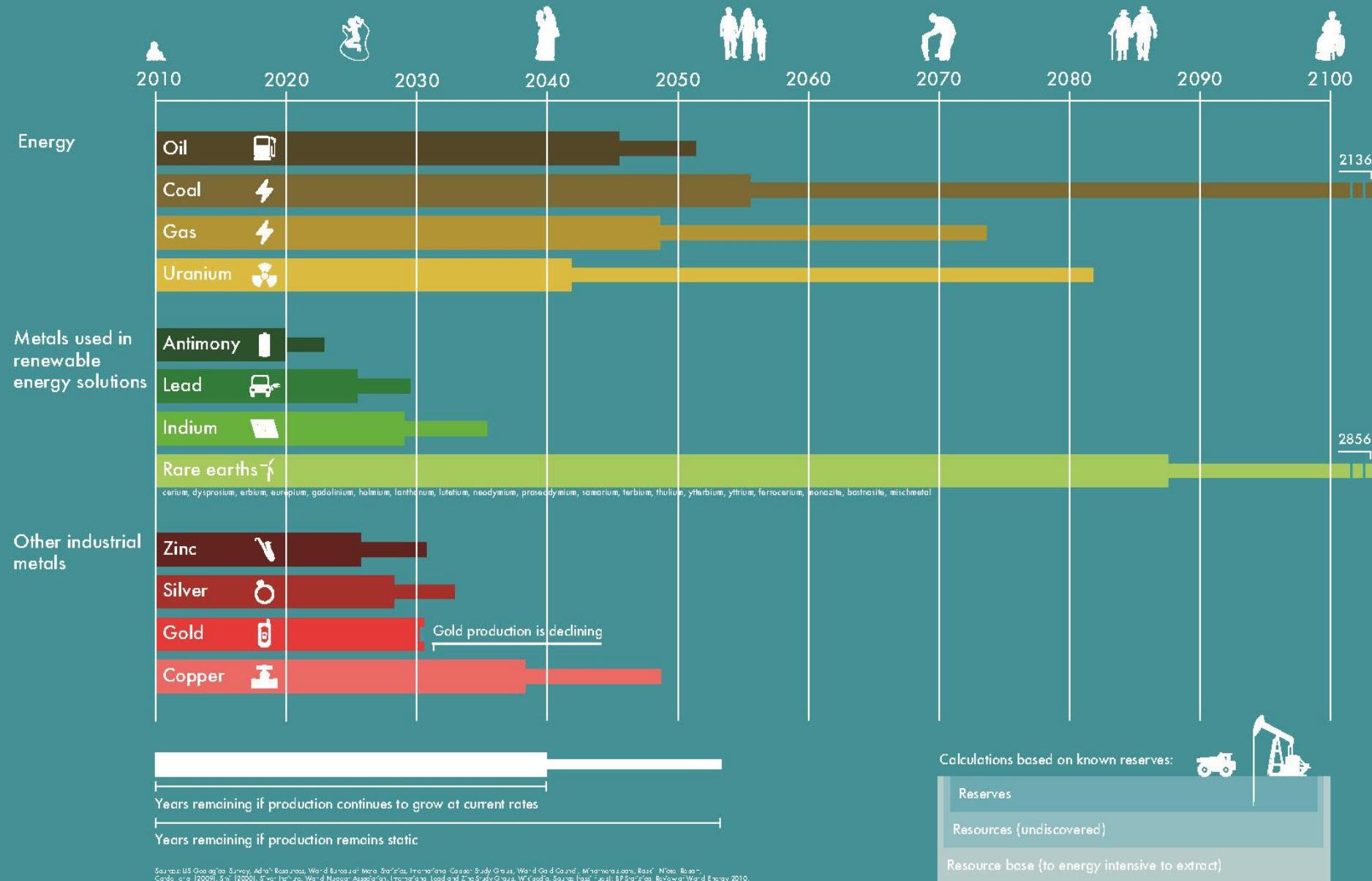
E
↓
P
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C
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D



E
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D



Born in 2010: How much is left for me?

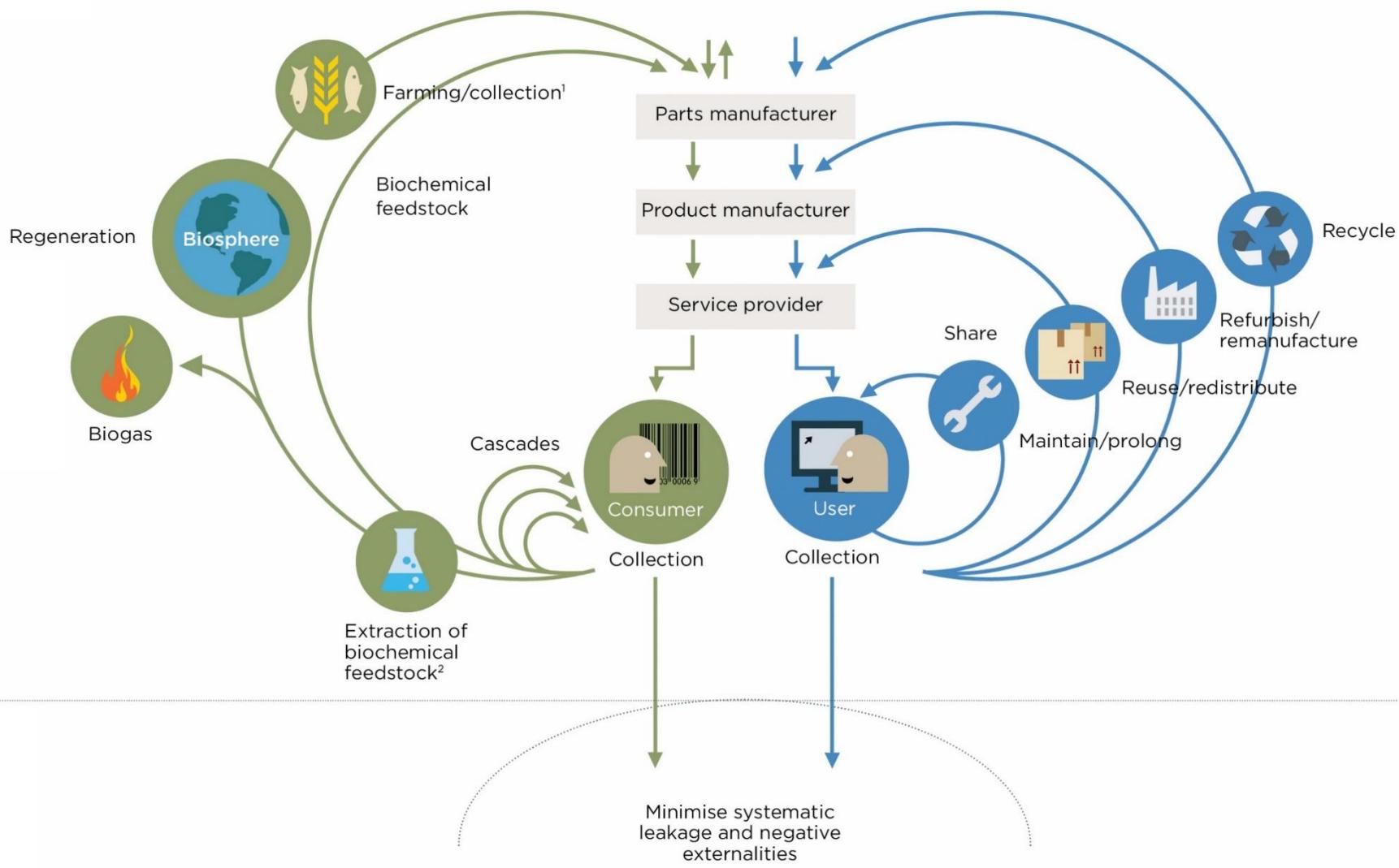




Regenerate Substitute materials Virtualise Restore

Renewables flow management

Stock management



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CIRCULARITY IN ISOLATION

4 AGENDA'S

MASDAR CITY - Optimizing Flows



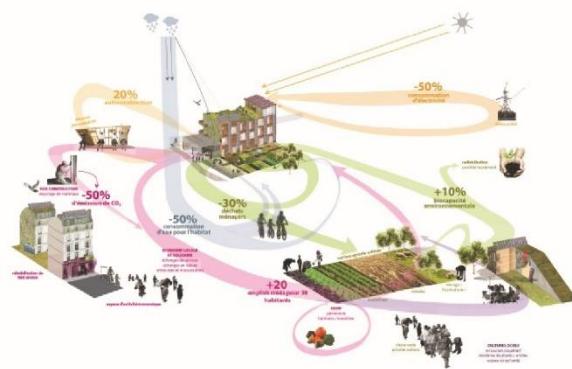
REBURG - Innovating With Flows



LIVING BREAKWATERS - Contextualizing Flows



R-URBAN - Democratizing Flows



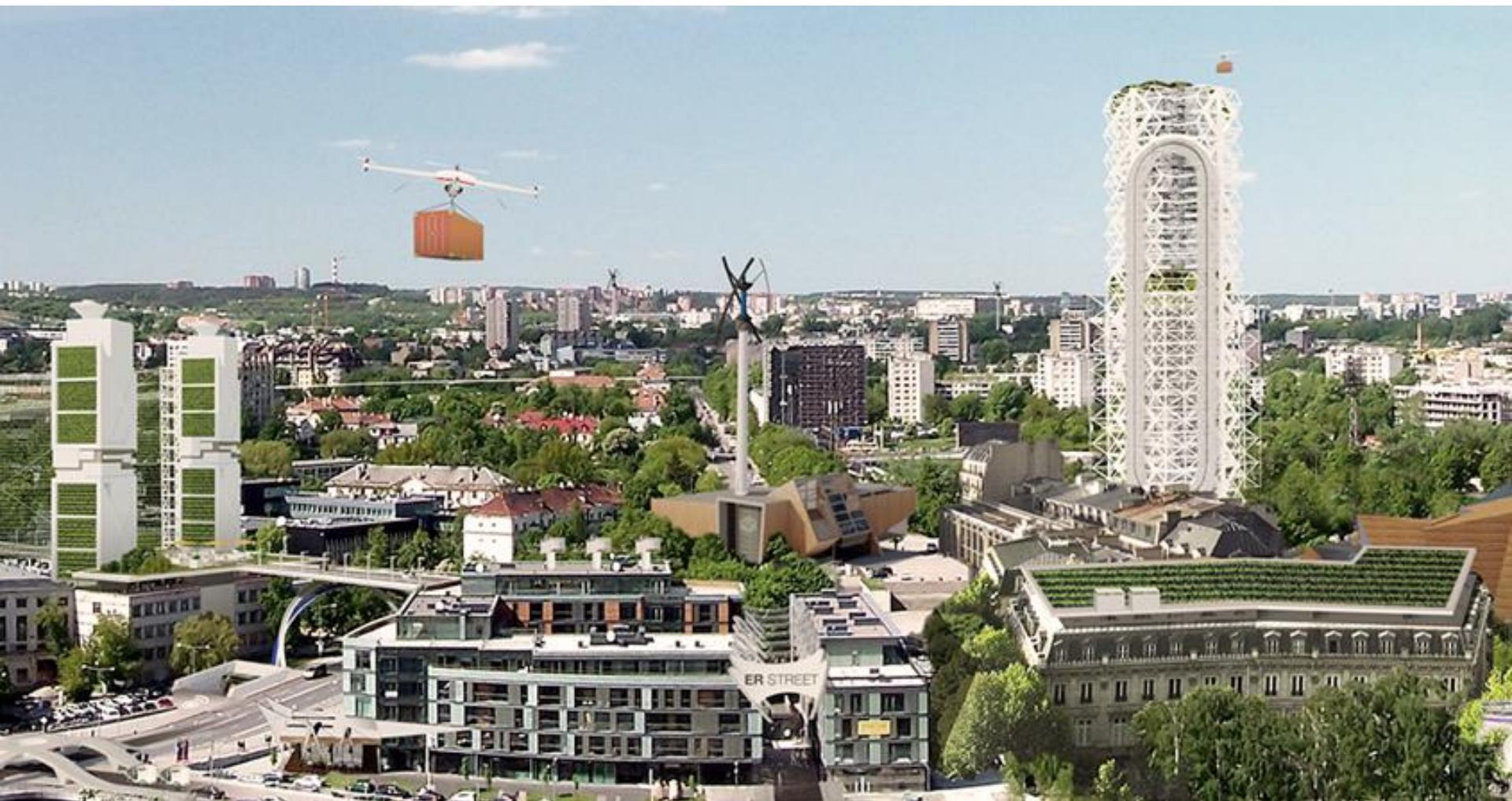
CIRCULARITY IN CONTEXT

Bron: Foster and Partners 2007 (top left), Circular Flanders 2015 (top right), Scapestudio 2013 (bottom left), Agence D'Architecture Autogérée 2008

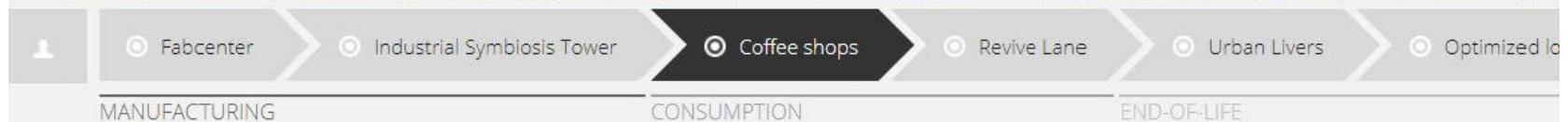
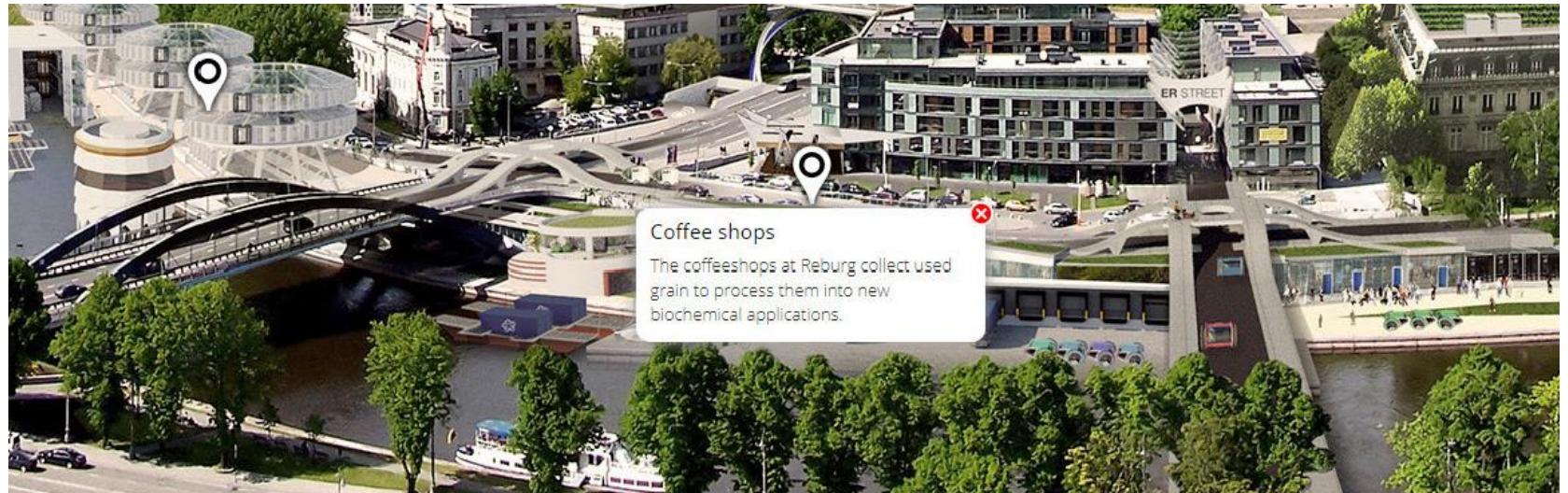
1. STROMEN OPTIMALISEREN

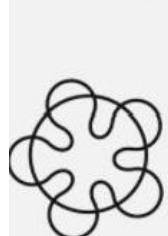


2. INNOVEREN MET STROMEN



2. INNOVEREN MET STROMEN





CITY OF
REBURG
WORLD'S MOST
CIRCULAR CITY

COFFEE SHOPS



ZOE MERTENS: "In Reburg we have Circular Coffeeshops: the whole building and interior is made out of coffee ground derivatives: the insulation material, the furniture, the pillows, the cups... The tons of grounds in the city are collected and returned to the Urban Livers on a daily basis. The livers process them into various new high value products: they become nutrients for the vertical farms, bio-chemicals for the textile guilds or a base product for plastics."



FROM FOOD WASTE TO TREASURE
from coffee grounds to plastics,
from food waste to graphene,
from banana peels to glass...

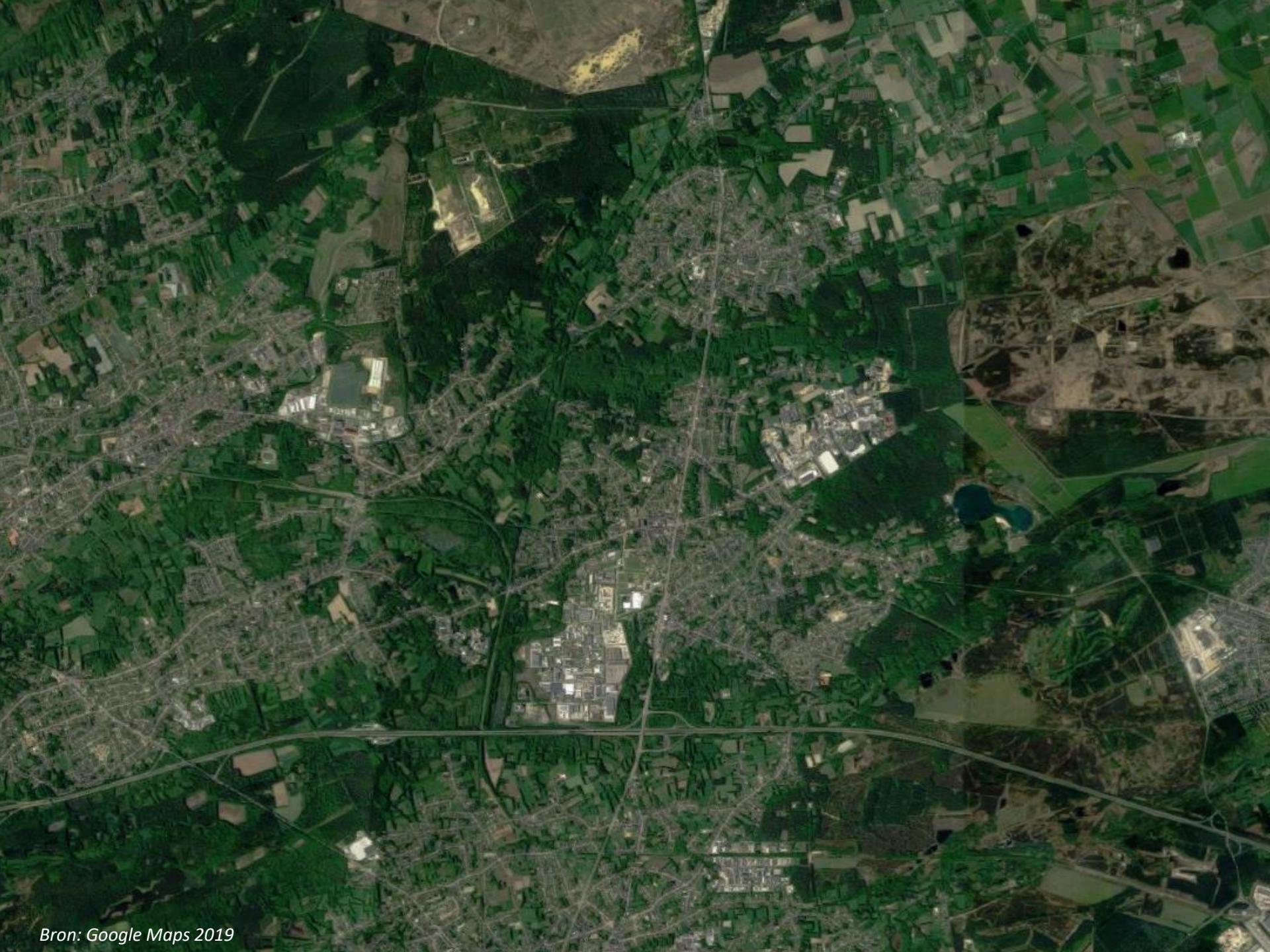
CIRCULARITY IN ISOLATION

MASDAR CITY - Optimizing Flows



REBURG - Innovating With Flows

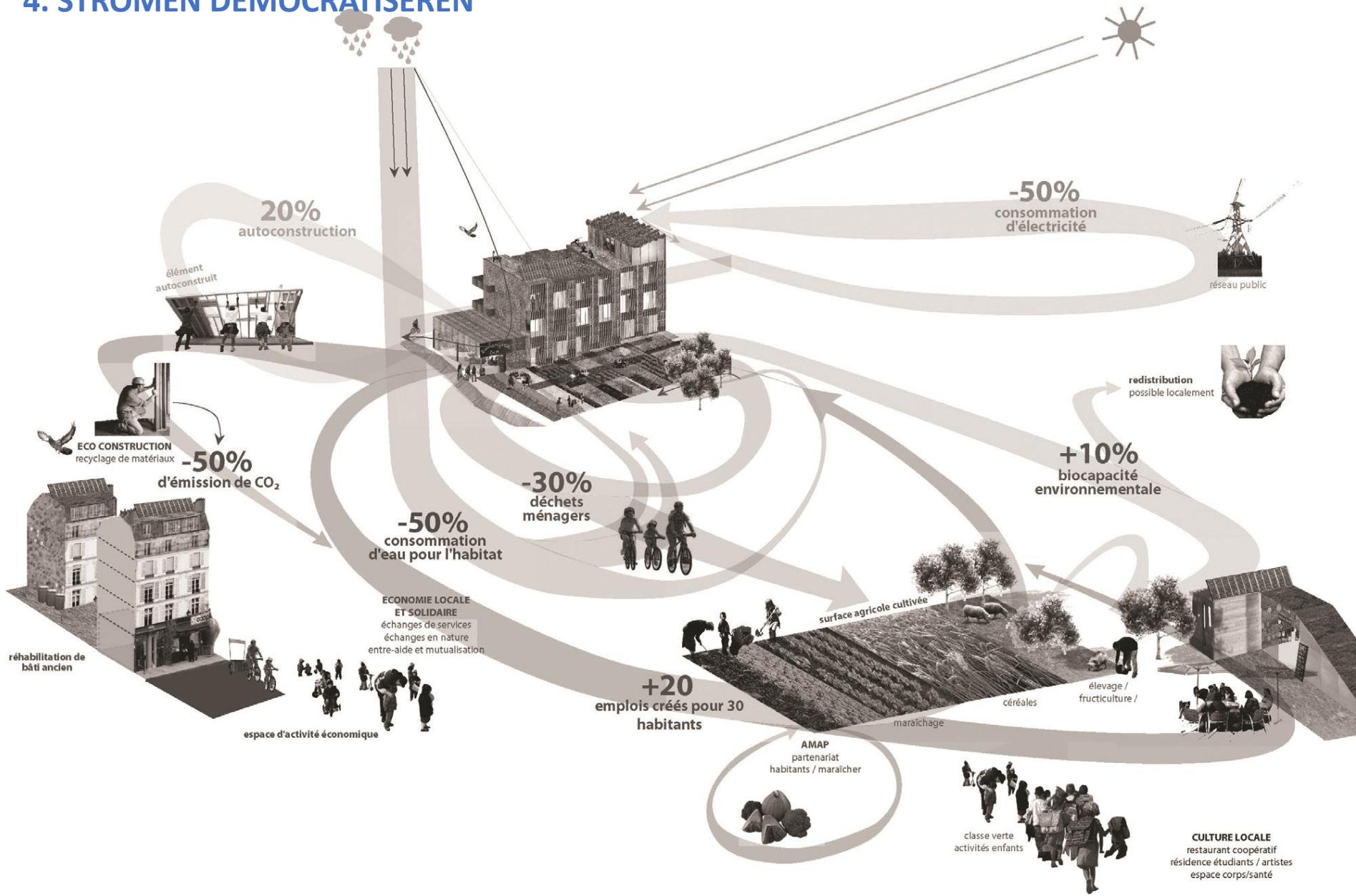




3. STROMEN CONTEXTUALISEREN



4. STROMEN DEMOCRATISEREN



CIRCULARITY IN ISOLATION

4 AGENDA'S

MASDAR CITY - Optimizing Flows



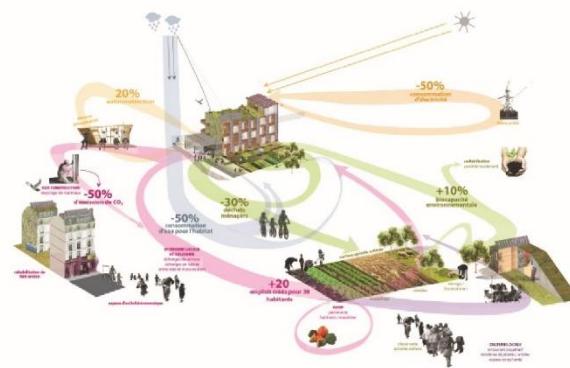
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LIVING BREAKWATERS - Contextualizing Flows



R-URBAN - Democratizing Flows



CIRCULARITY IN CONTEXT

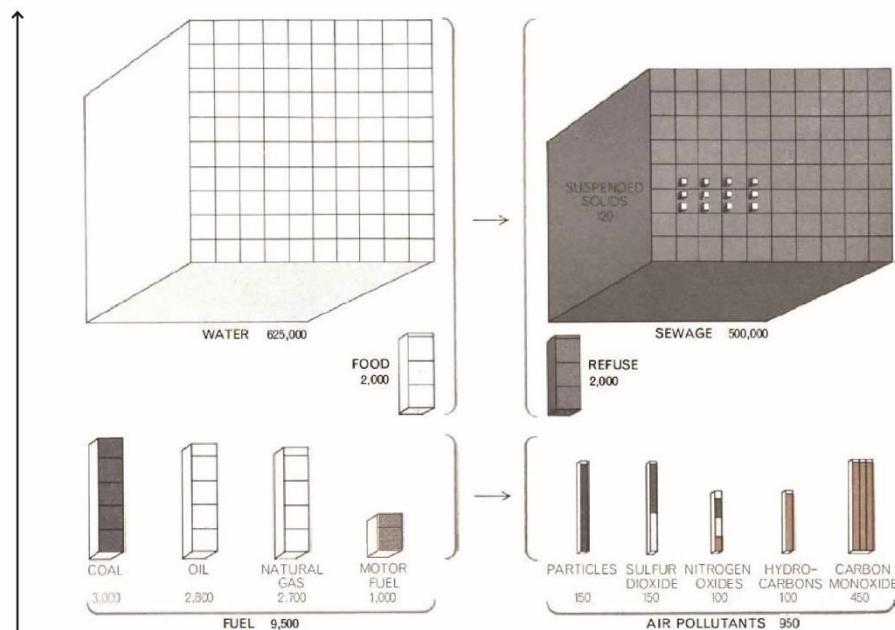
Bron: Foster and Partners 2007 (top left), Circular Flanders 2015 (top right), Scapestudio 2013 (bottom left), Agence D'Architecture Autogérée 2008

4 AGENDA'S

OBJECTIVIST

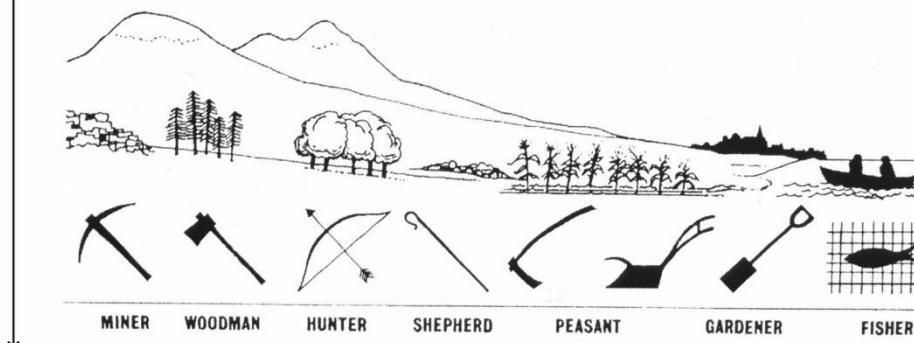
MANAGING RESOURCE FLOWS

- technology
- economics



INTERTWINING RESOURCE FLOWS AND HUMAN LAND USE

- social context
- culture
- ecology



CONSTRUCTIVIST

Bron: Wolman 1965 (top), Geddes 1909 (bottom), based on Vandenbroeck 2017

I – INTRO

- circulaire economie?

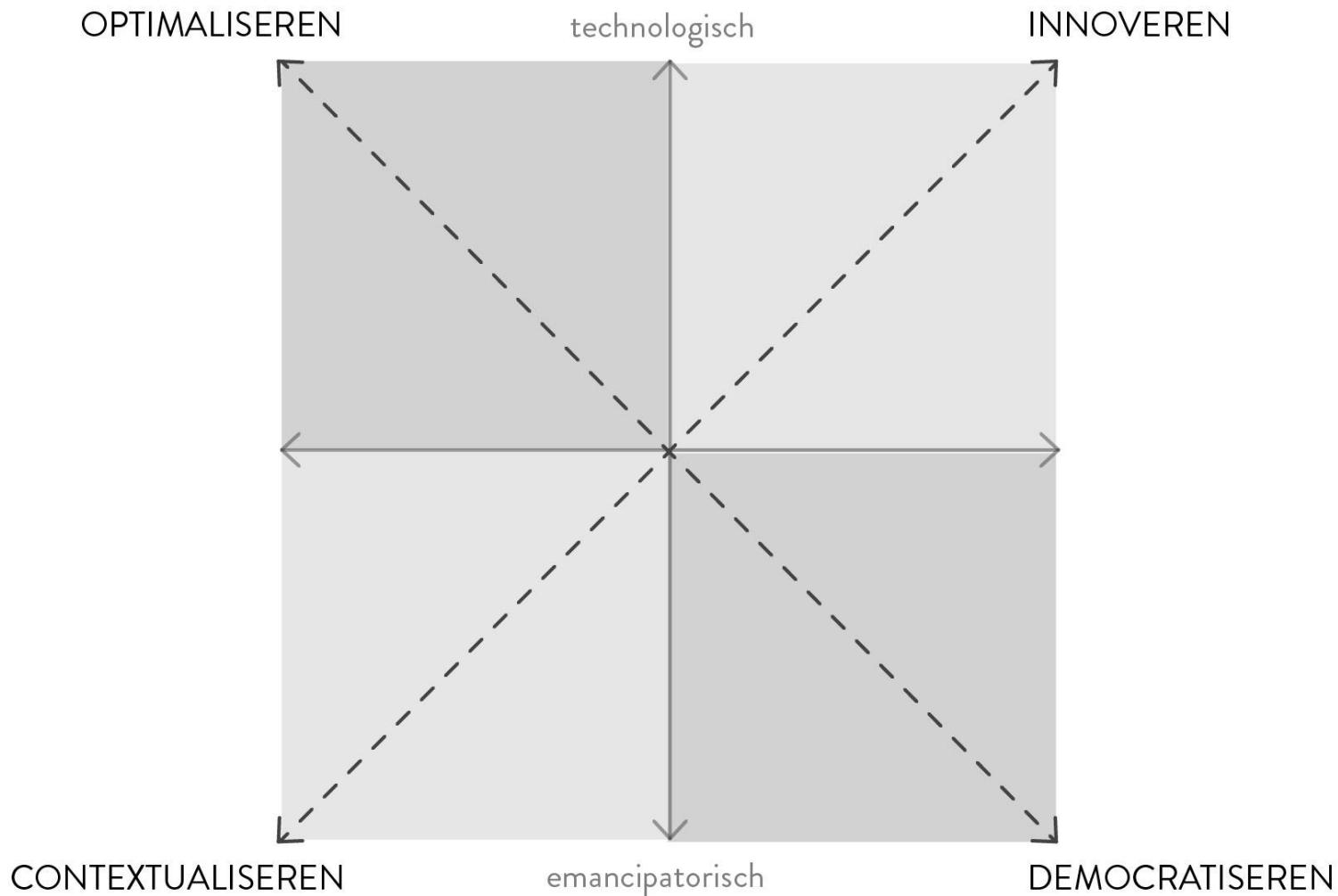
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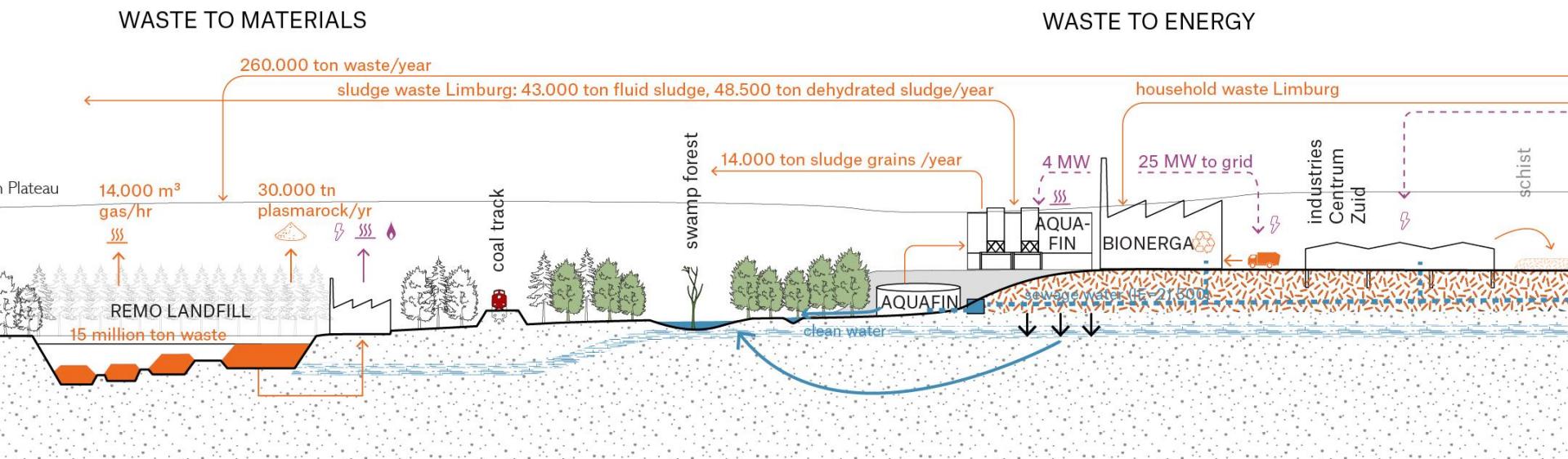
- *urban landscape design* instrumenten voor circulariteit

EEN BALANS TUSSEN 4 AGENDA'S ZOEKEN



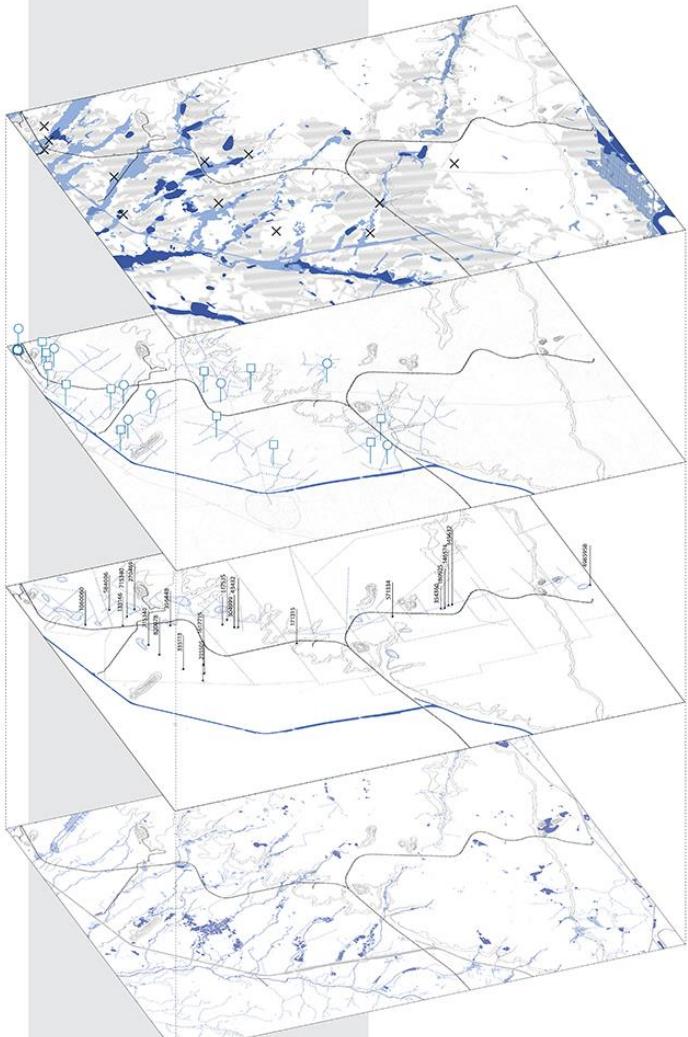
PLAATS SPECIFIEKE CIRCULARITEIT

HOUTHALEN



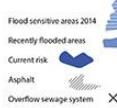
WATER

RECONFIGURING CENTRAL LIMBURG'S WATER METABOLISM



Could the restoration of Central Limburg's water metabolism become a component of the circular economy, while contributing to local ecologies?

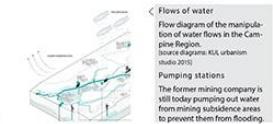
Closed system in crisis



Because of mining and other industrial activities such as piping, buying and controlling water, Central Limburg's water metabolism has been locked into a system with a fixed capacity. The idea that water is fully controllable becomes less relevant as the capacity of the water system is challenged every day. The combination of invasive paving and piped drainage creates problems of flooding in case of heavy rainfall downstream from the Campine Plateau in Central-Limburg.



Management issues
Issues with Flanders' current water management system being: invasive paving, piped drainage, constructed rivers, channelization patterns, water supply.
[source PhD thesis 'Sections of Fluvial, 2013 C.Nolf]



Water manipulations



The combined system of rainwater and sewage water leads to under-capacity of the overground water system. The overall people-controlled water system is very expensive and fragile.



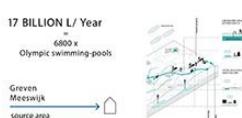
MINE
pumped up
CANAL
thrown away
[source diagrams KUL, urbanism studio 2015]



Mining disturbances



Mining activity in Central-Limburg added another layer of complexity to Central-Limburg's water story: the mining subsidence areas. These areas have given up to relieve stress as a result of collapsing underground coal extraction tunnels and need to be constantly pumped in order not to be flooded by ground water. As a result an abundance of water is being wasted. The most striking example can be found in Maasmechelen.



Greven Meeswijk
source area
[source diagrams KUL, urbanism studio 2015]



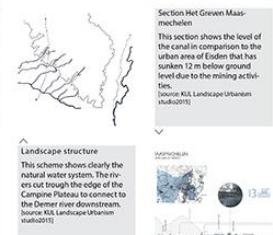
Natural Water bodies



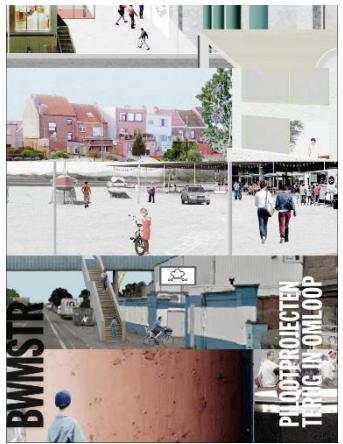
Central Limburg's natural water structure reveals a historical organisational system in the Campine region territory. Water bodies run from the Campine plateau towards the Demer river. Since the 12th century people have been domesticating this sandy land by dredging ponds. The Wijlers are a good example. These artificial fishing ponds are still clearly legible in the landscape.



Droughts
Today many of these ponds remain part of (protected) landscapes, but in dry periods they are pumped dry to fill them. A measure can help restoring this traditional organisational system based on landscape logic.
[source PhD thesis 'Sections of Fluvial, 2013 C.Nolf and B.Paesen (KUL)]



CO-PRODUCTIE

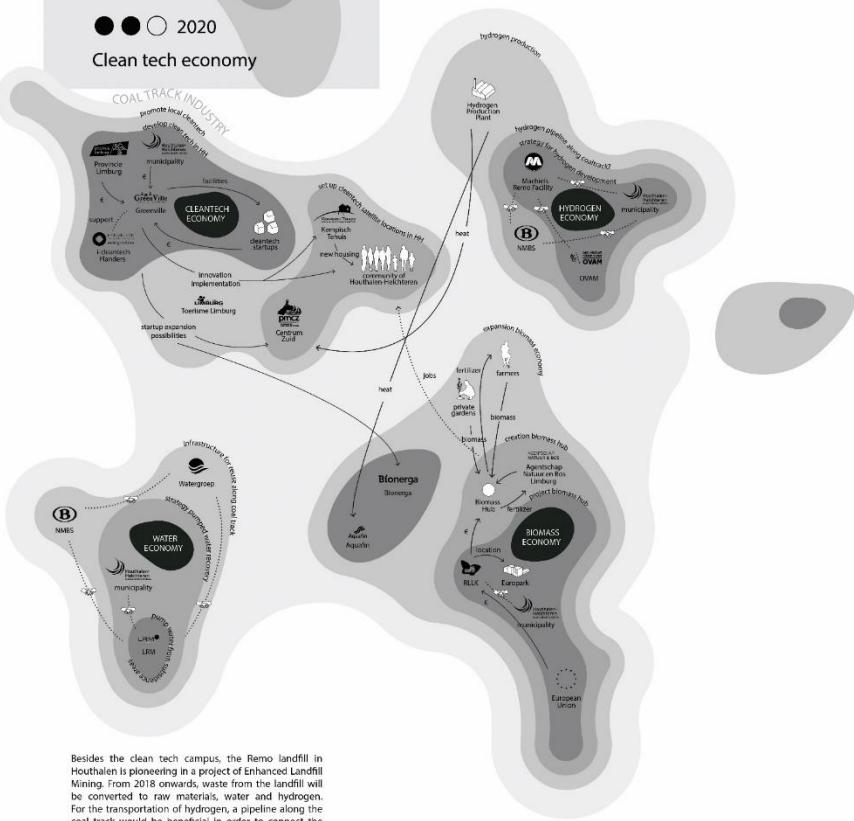


VISION 1

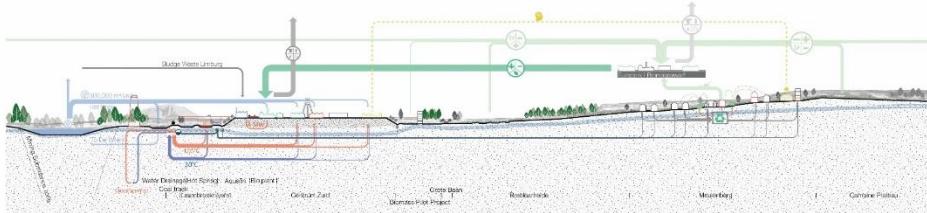
Houthalen-Helchteren,
a leader in a regional
landscape economy

● ● ○ 2020

Clean tech economy



Besides the clean tech campus, the Remo landfill in Houthalen is pioneering in a project of Enhanced Landfill Mining. From 2018 onwards, waste from the landfill will be converted to raw materials, water and hydrogen. For the transportation of hydrogen, a pipeline along the coal track would be beneficial in order to connect the hydrogen to industries along the coal track such as Essers, Ika, De Lijn in Genk, all the way to Genk Zuid, where Aperam, one of the big H2 users, is operational.



Bron: Urban Design Workshop Houthalen-Helchteren, coordinated by OSA KU Leuven Marin, Motti, De Meulder 2016



EEN BALANS TUSSEN 4 AGENDA'S...

