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Nature-based solutions for urban resilience

Bratislava - 12th of September 2018

LIFE17 CCA/SK/000126 - LIFE DELIVER



**Johannes
Kisser**



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Old Paradigm Linear Economy

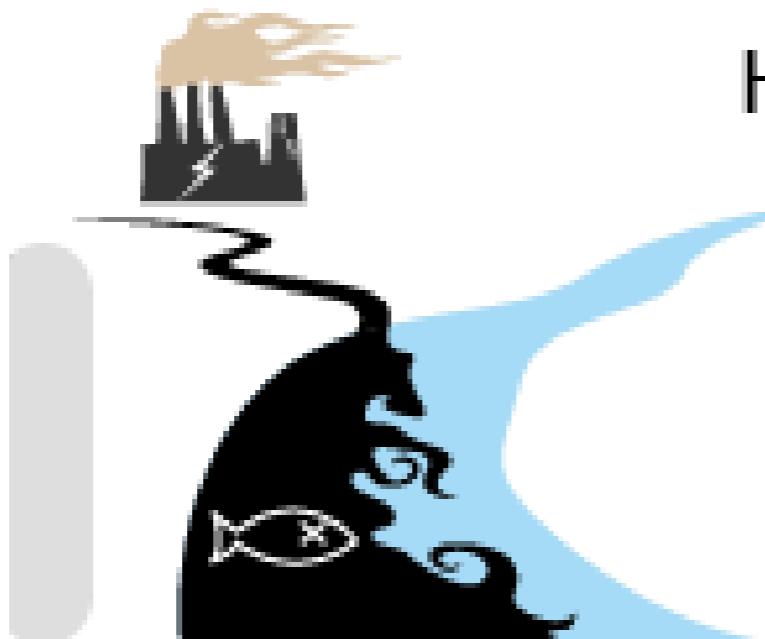




The public pays



**...and everyone
pays for these.**



**Environmental
degradation**



Health impacts



Subsidies

Source: groundtruthtrekking.org



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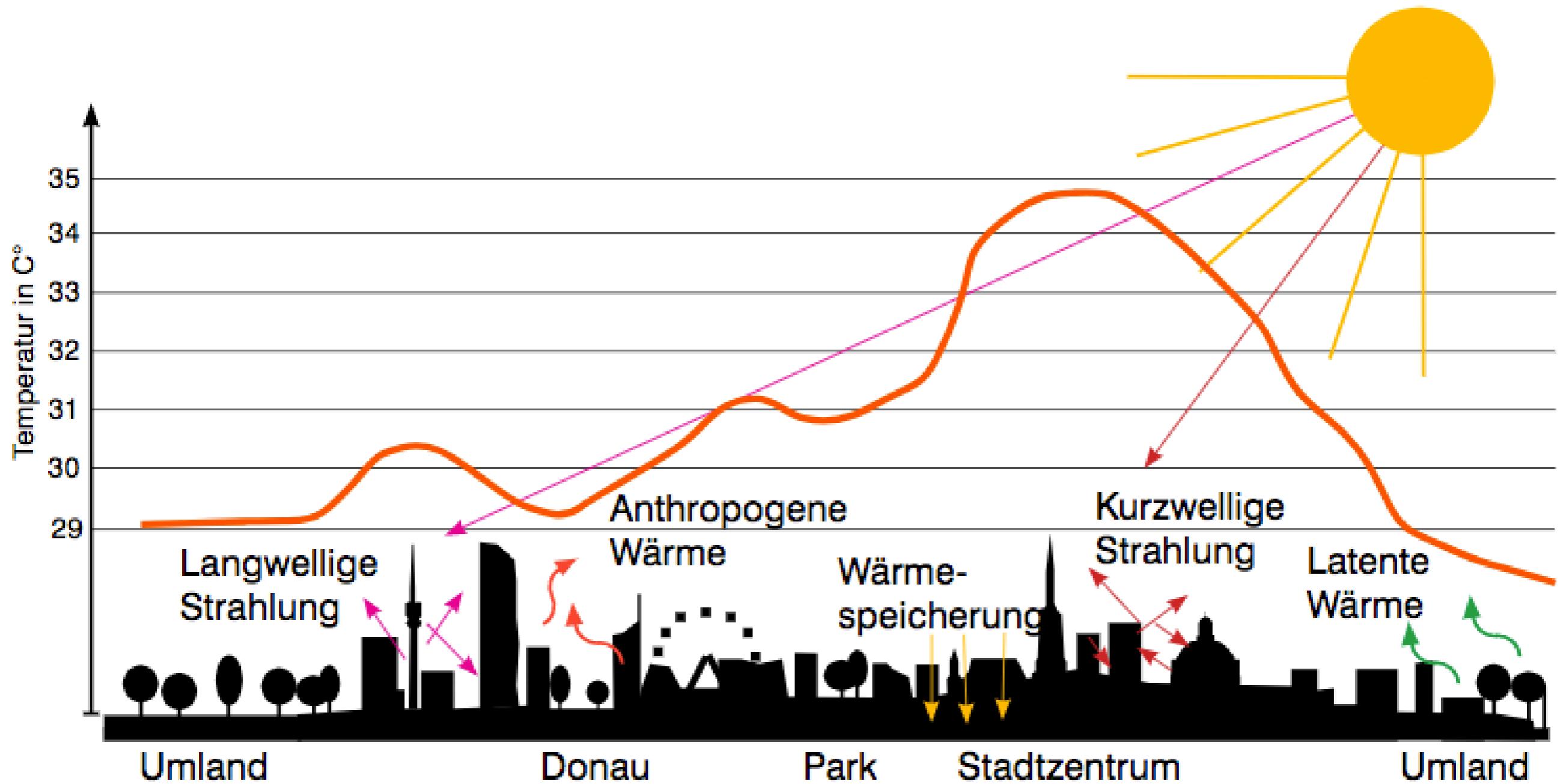


Air pollution





Urban Heat Islands Vienna



Urban Heat Islands Vienna. Source: UHI Strategieplan Wien, 2015



Urban Heat Islands Vienna

2017: 33 days temp > 30°C

2015: 40

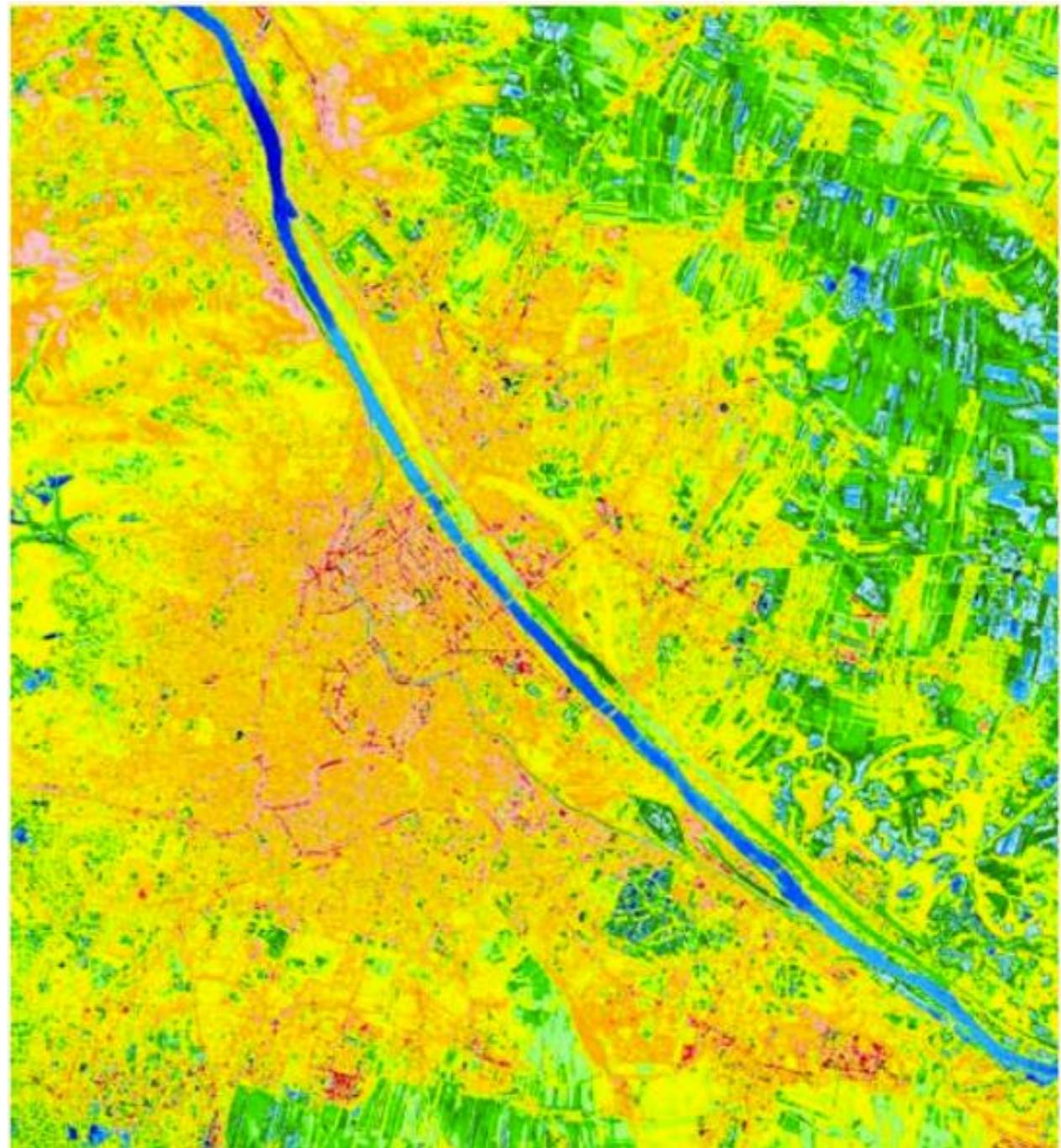
2013: 24

wien.gv.at Heat Monitoring Report

Sommer	Hitze-assoziierte Übersterblichkeit
2013	895
2014	134
2015	1122
2016	0
2017	586

Heat Mortality

Source: ages.at, 2018



Urban Heat Islands Vienna
Source: UHI Strategieplan Wien, 2015



Heavy rain

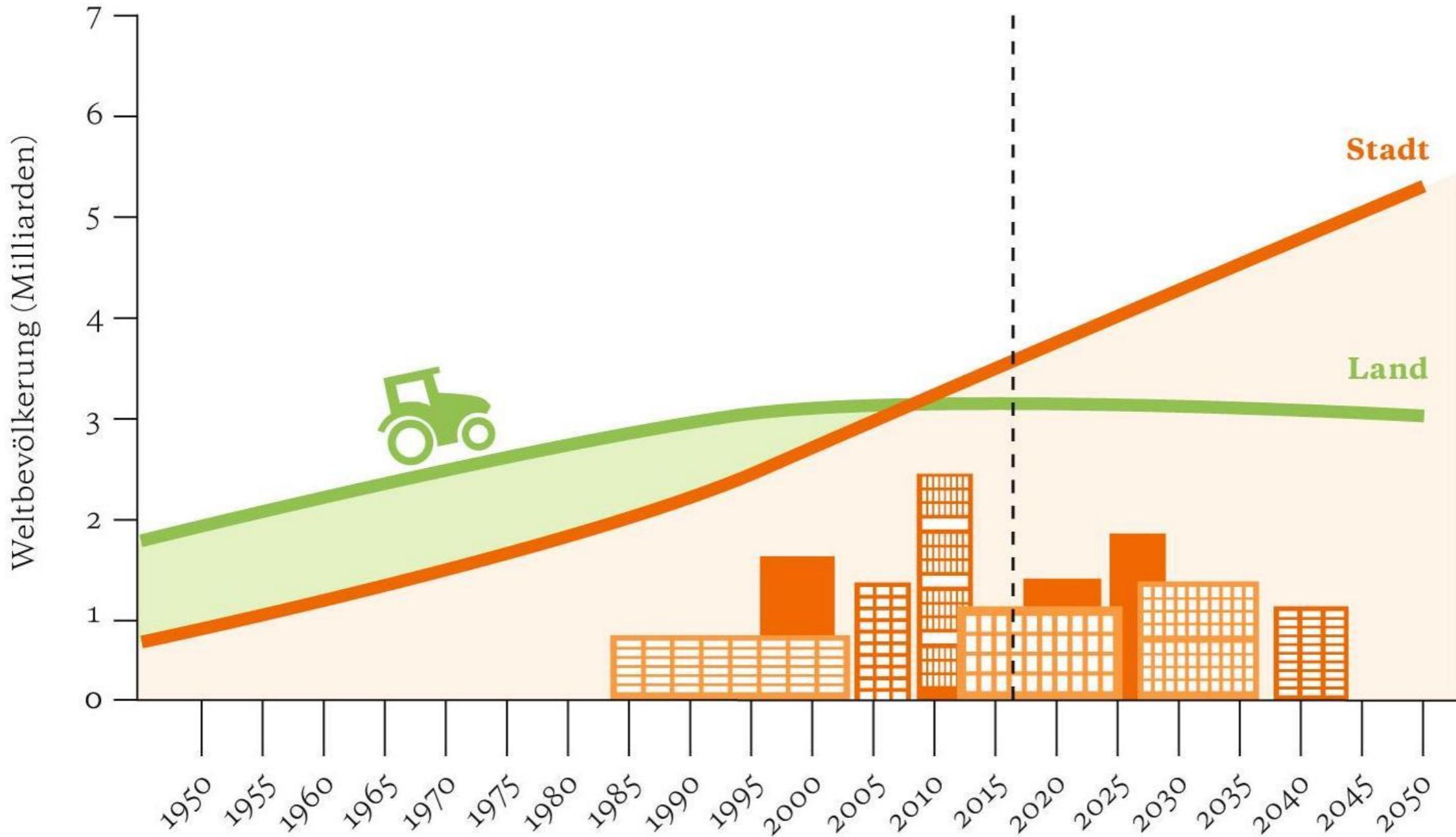


heavy rain Vienna. Source: Heute.at, 10.7.2017

Population



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Nutrient transfer to cities



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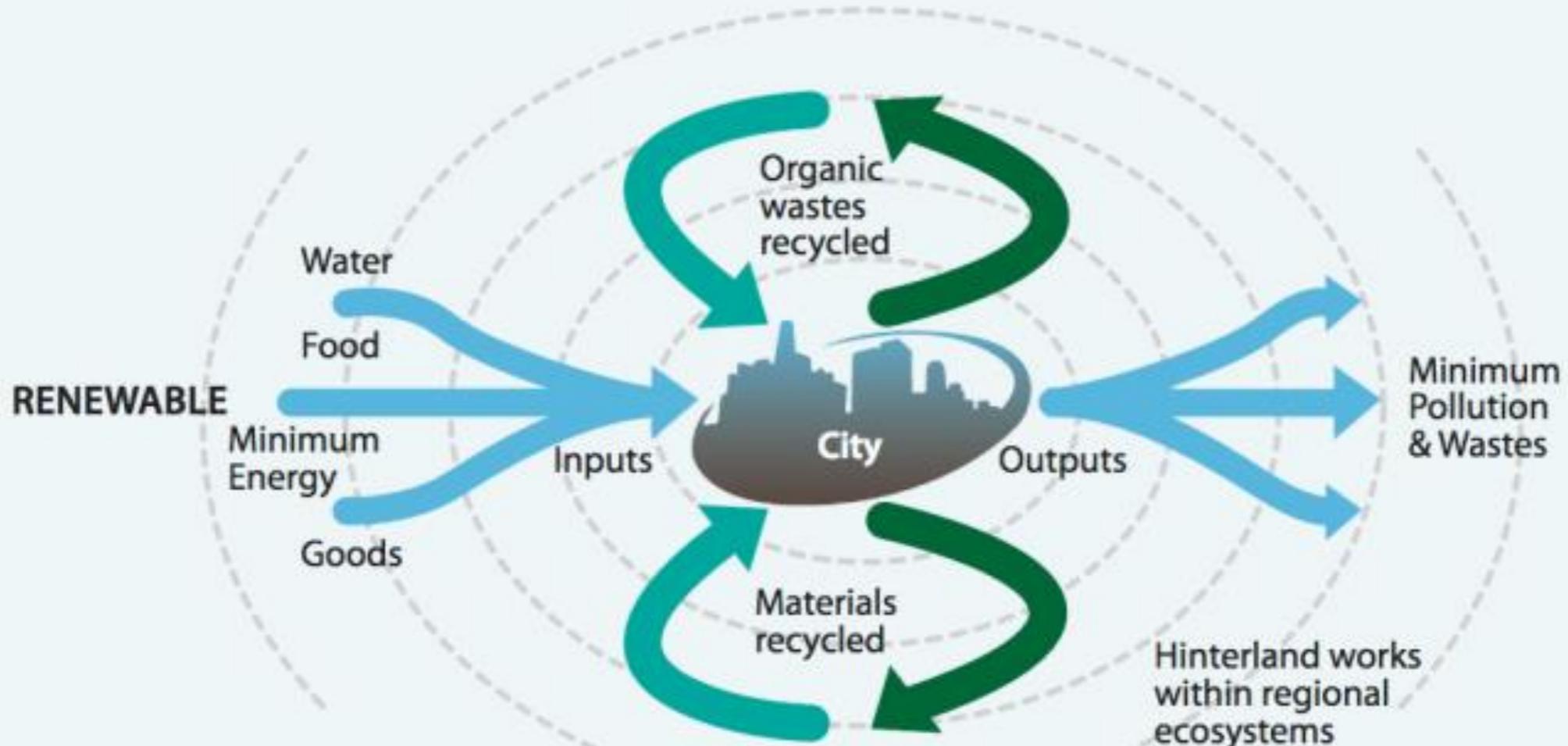


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Source: Centravo 10

Metabolism of Cities

CIRCULAR METABOLISM CITIES REDUCE CONSUMPTION AND POLLUTION,
RECYCLE AND MAXIMIZE RENEWABLES



Urban Metabolism. Source: zefhemel.nl, 2018



New Paradigm Circular Economy



Take → **Make** → **Regenerate**

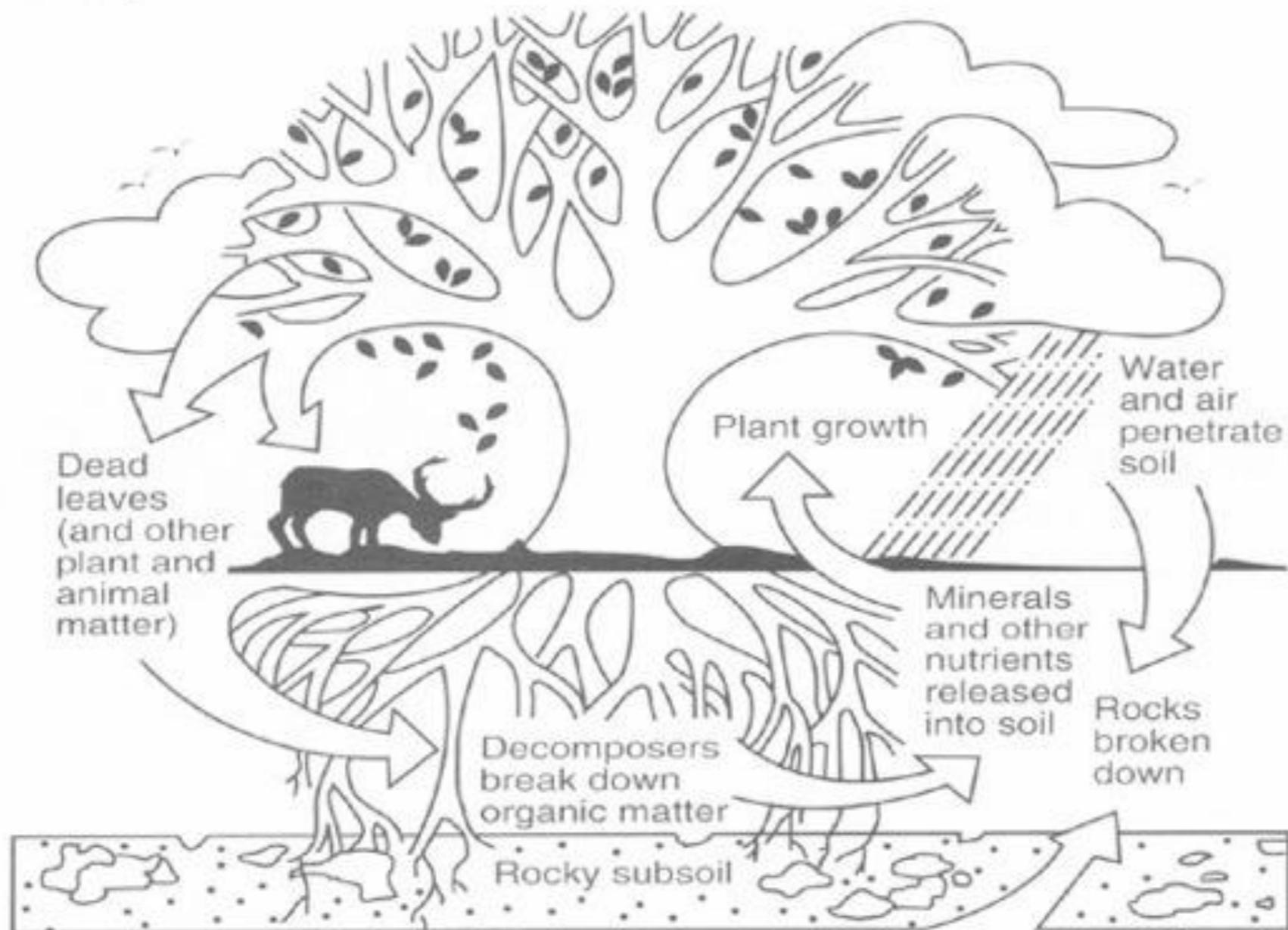


Tree as innovation generator and service provider



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Nutrient cycle.



Source: nrcs.usda.gov



A building like a tree



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**William McDonough's
Treescraper Tower of
Tomorrow**





A city like an ecosystem

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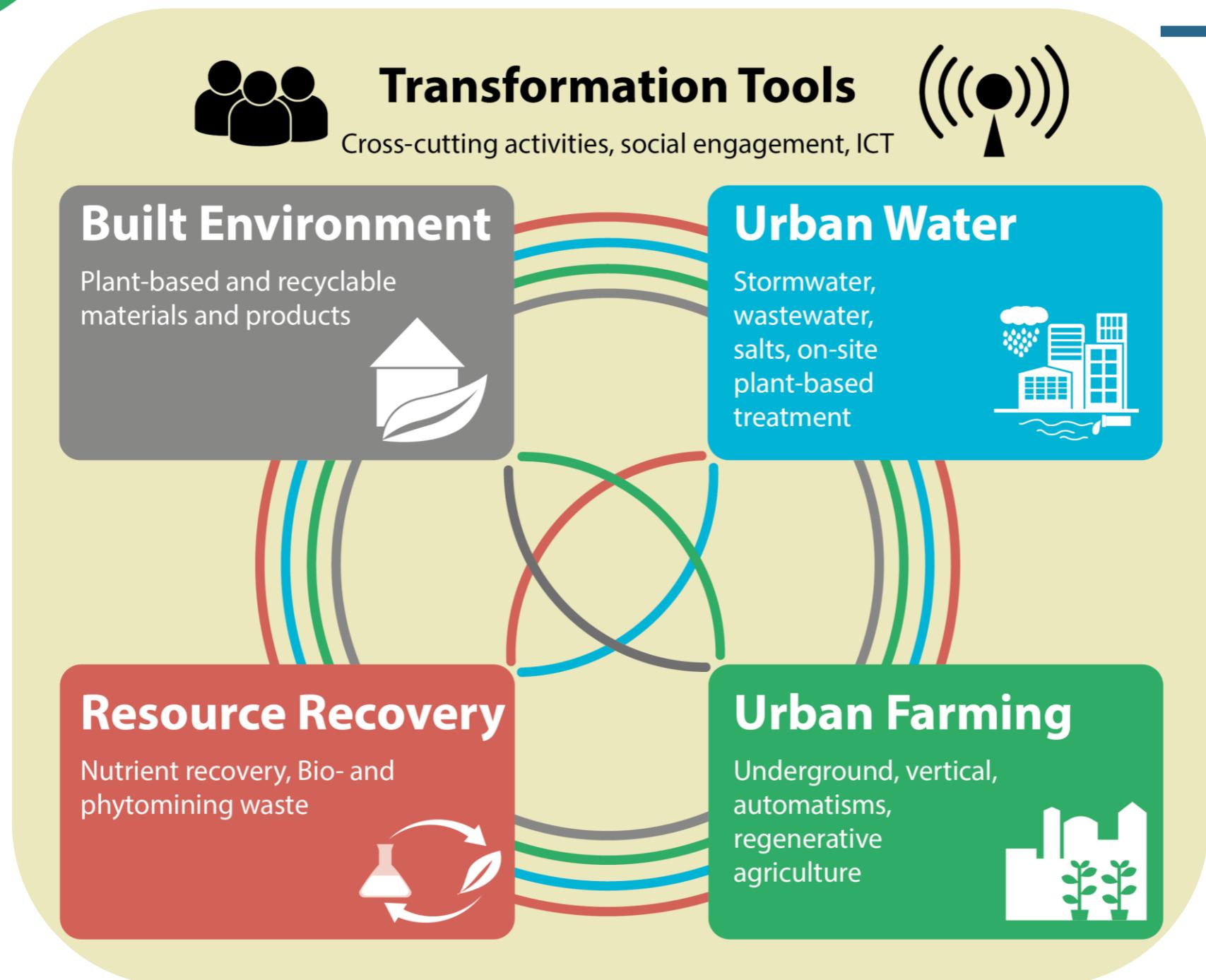
Circular City

RE . S O L U T I O N



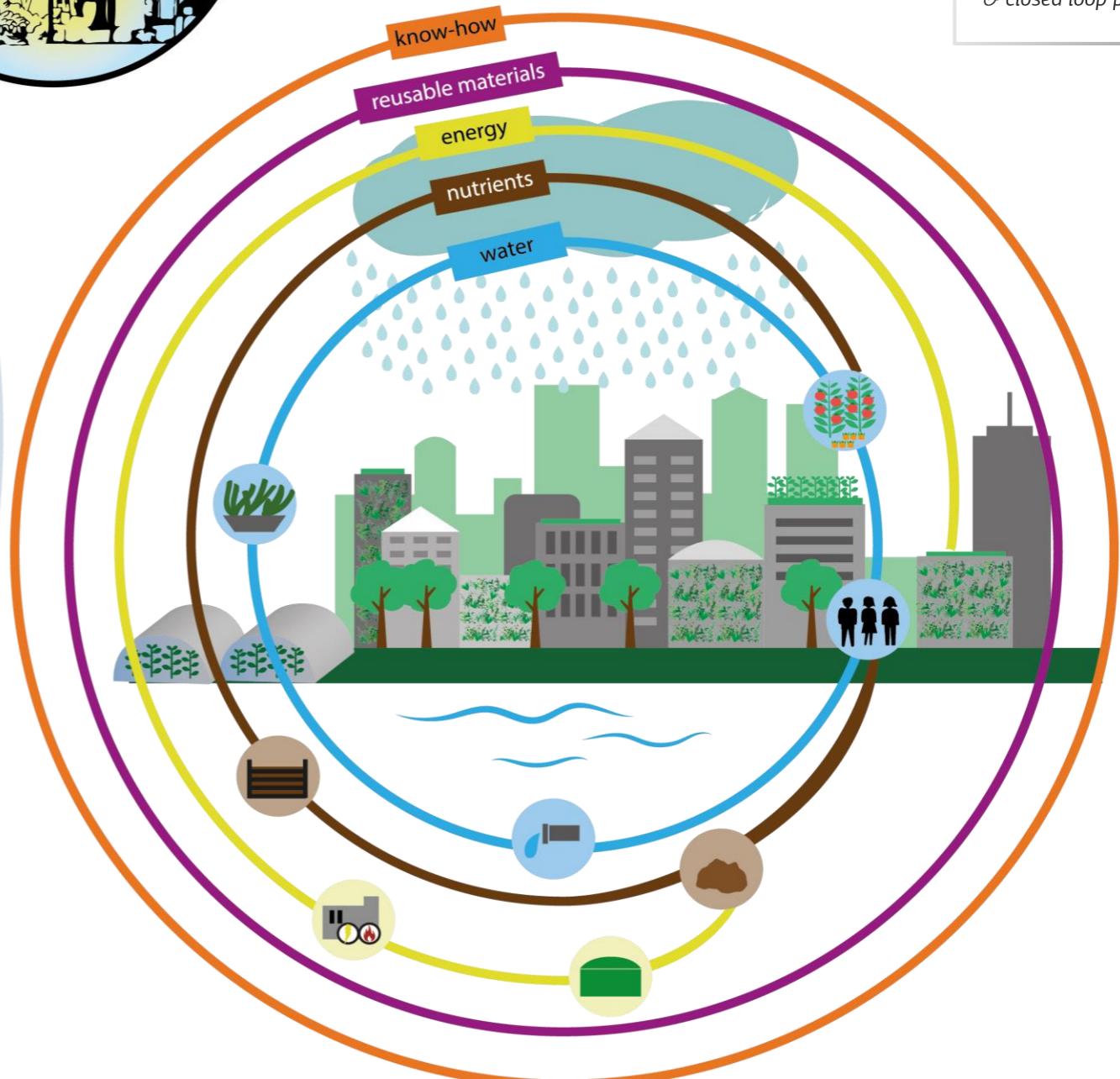
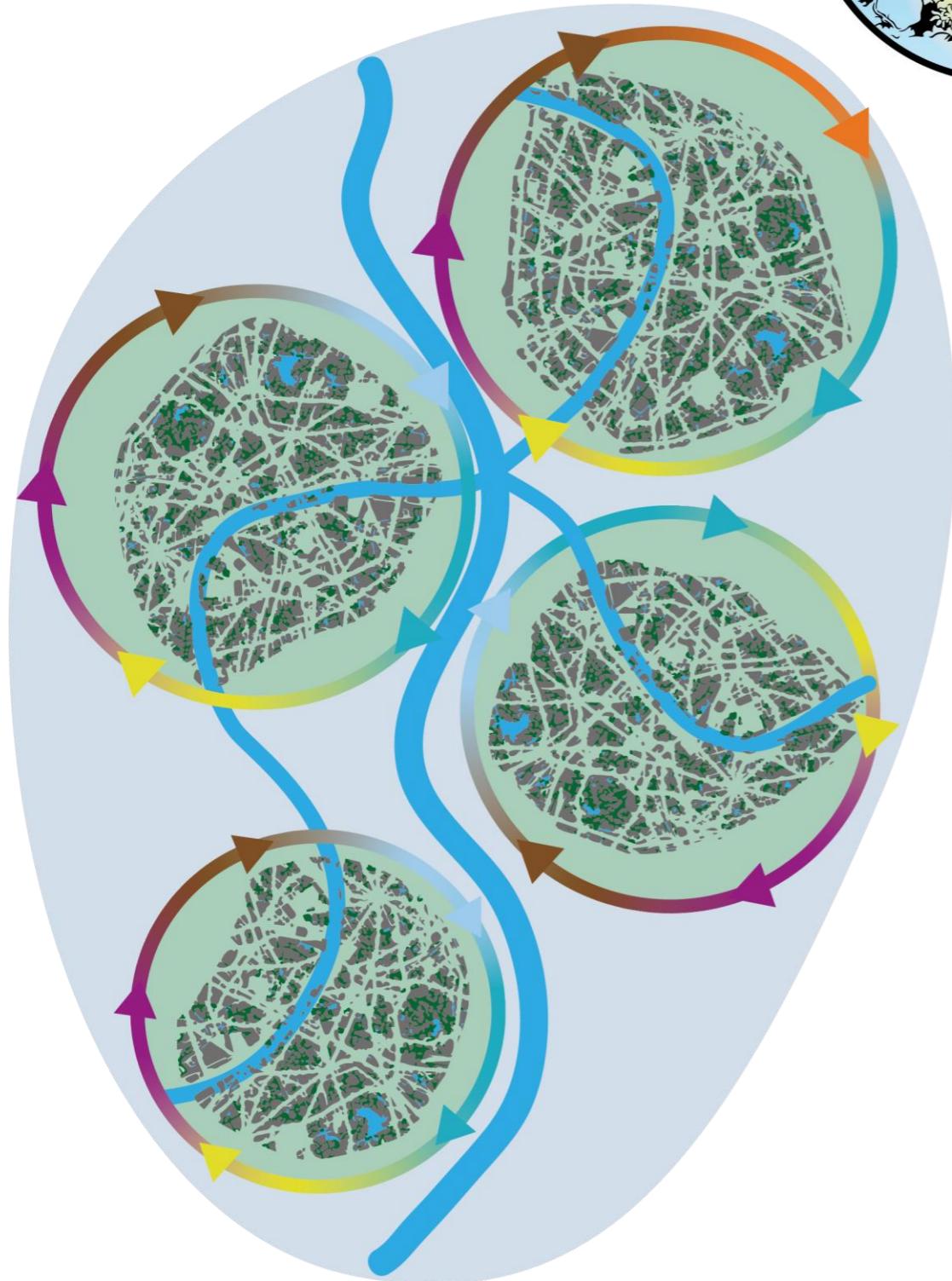
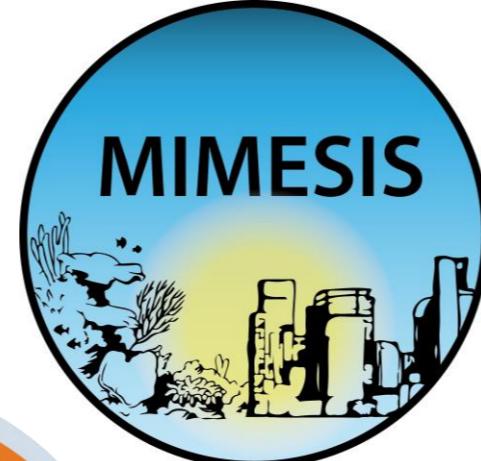
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cost
EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

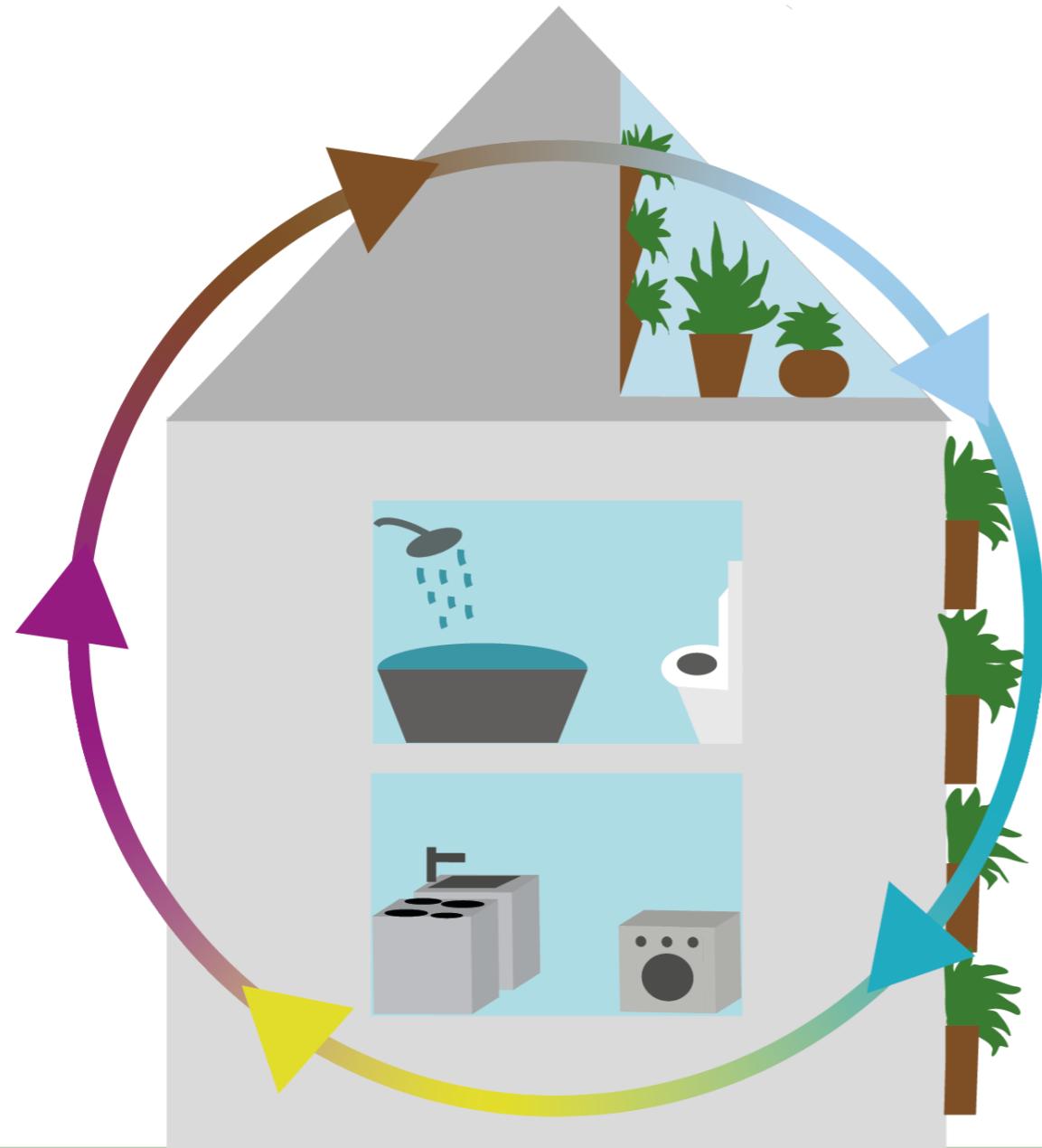
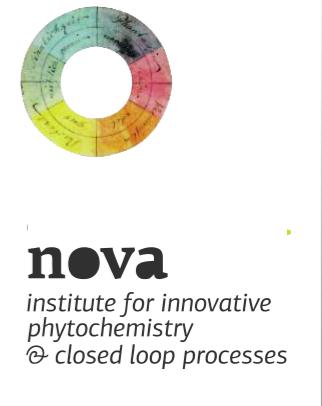




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Service-based business models



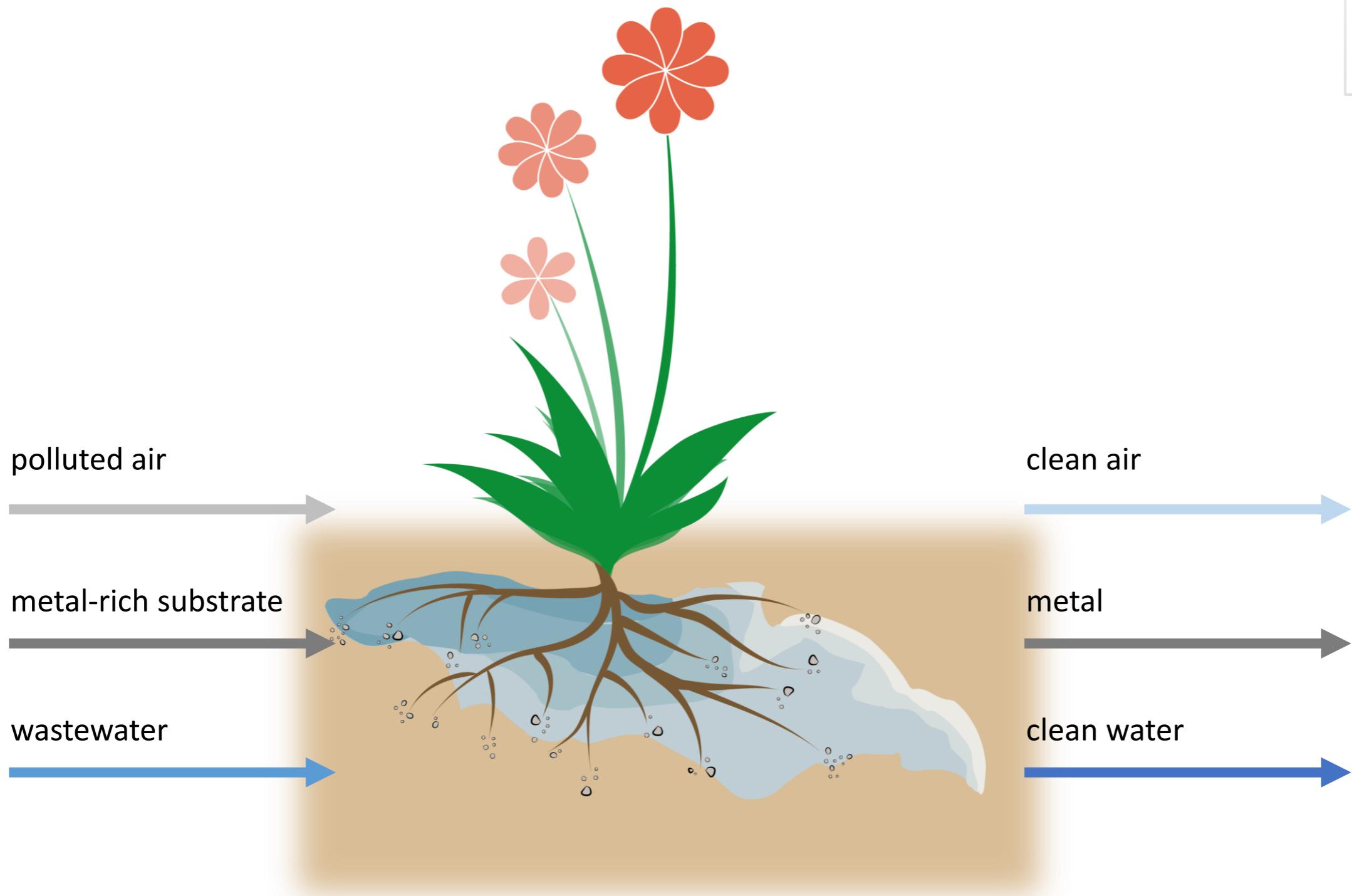
-  air purification
tempered climate
-  energy
-  service water
-  metals
-  nutrients / compost

- ✓ ***save money***
- ✓ ***make money***
- ✓ ***contribution to planet earth***

Plant powers



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VERTICAL ECOSYSTEM®



www.demEAUmed.eu

www.alchemia-nova.net



dem**EAU**med



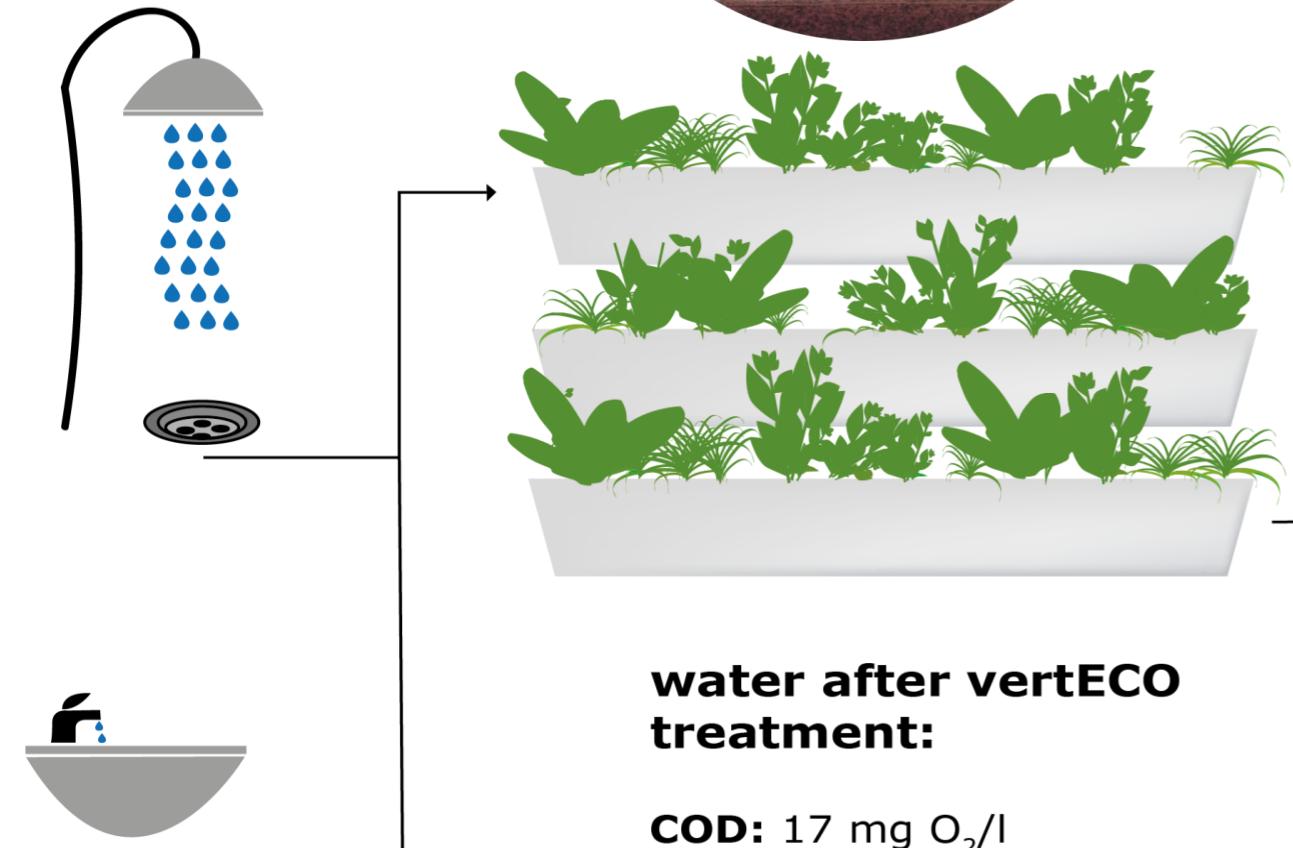
vertECO® summary of results



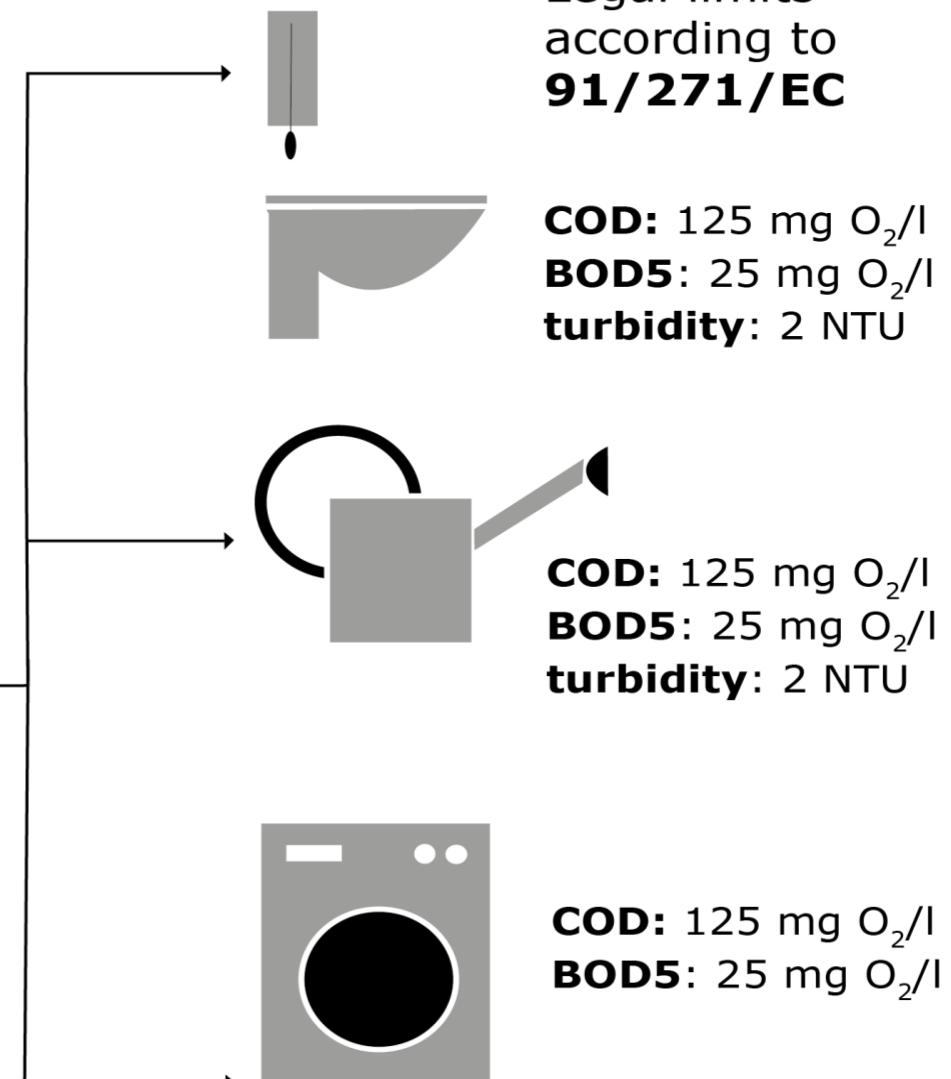
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greywater:

COD: 209 mg O₂/l
BOD5: 96 mg O₂/l
turbidity: 68 NTU



analytics by ICRA - data from: 2015-2017





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VertECO



www.greeninstruct.eu



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Climate
Launchpad



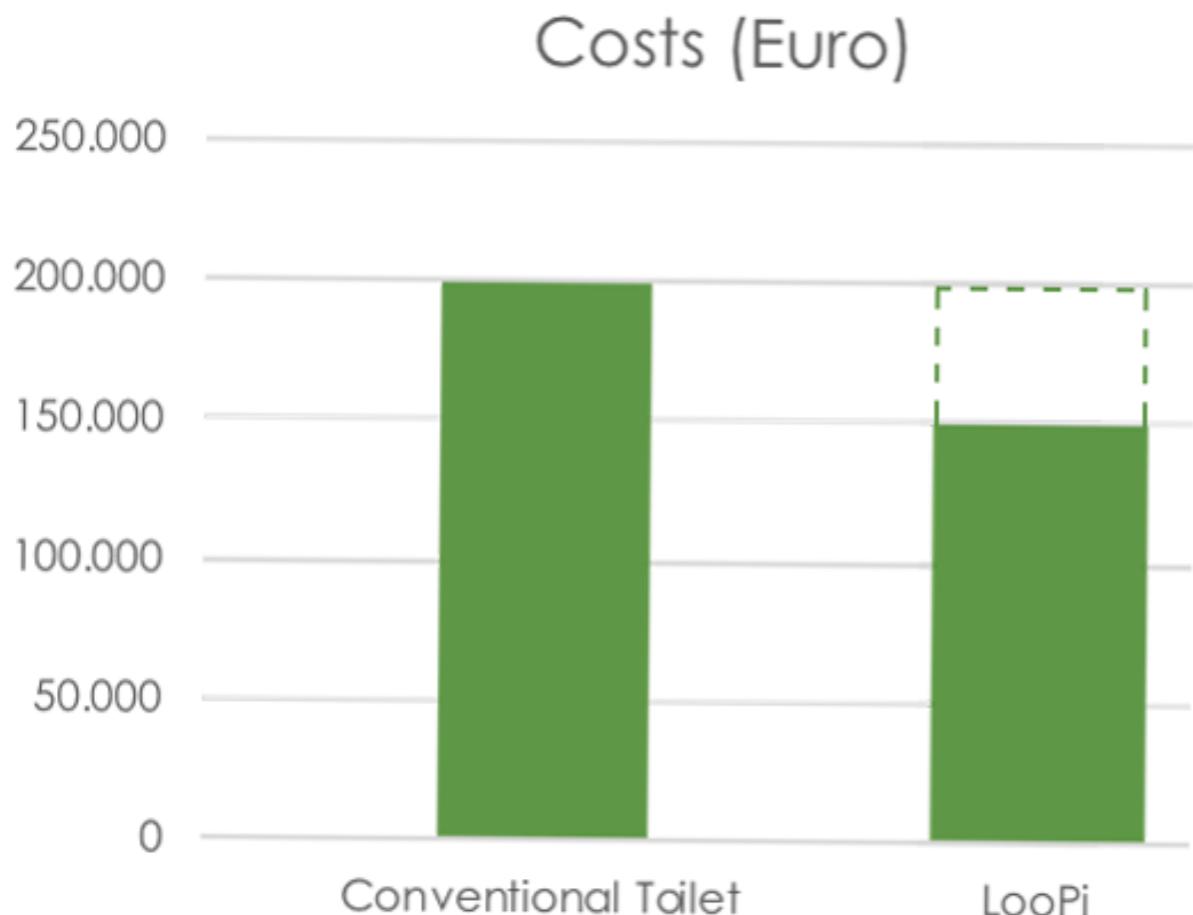
Climate-KIC

Plant-based
self-sufficient
(mobile) urinal
for all genders





Value proposition



	Conventional toilet	LooPi
Sustainability goals	✗	✓
Off-grid	✗	✓



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vertECO® raft



Impact vertECO® family for cities



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Increasing biodiversity

Increasing of resilience

Reducing water use

Cleaning the air

Reducing heat islands

Reducing sound pollution

Increasing life quality

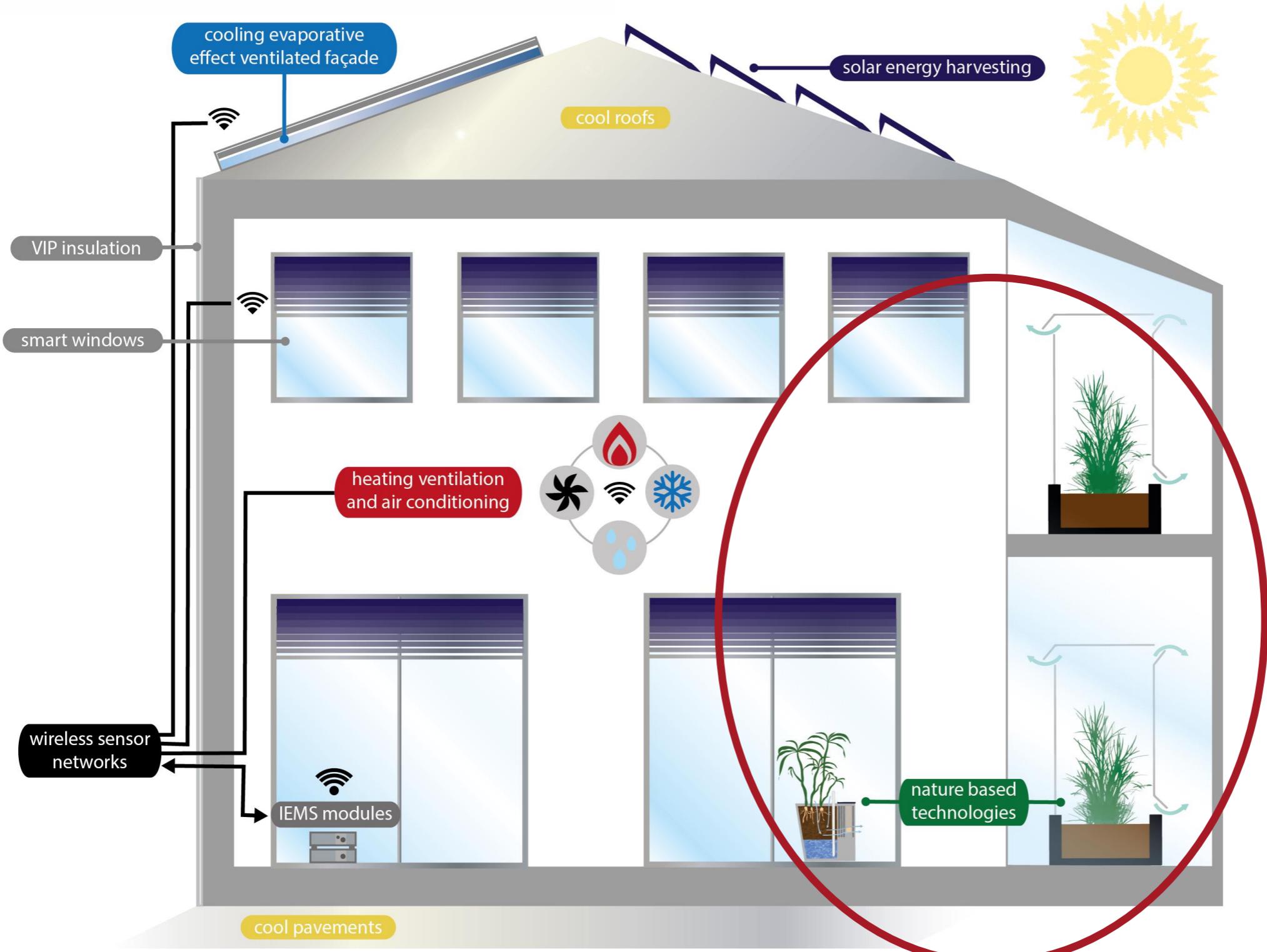
**Exhibition Kunsthaus Wien
Hundertwasser Museum
18/10/2018 – 19/01/2019**





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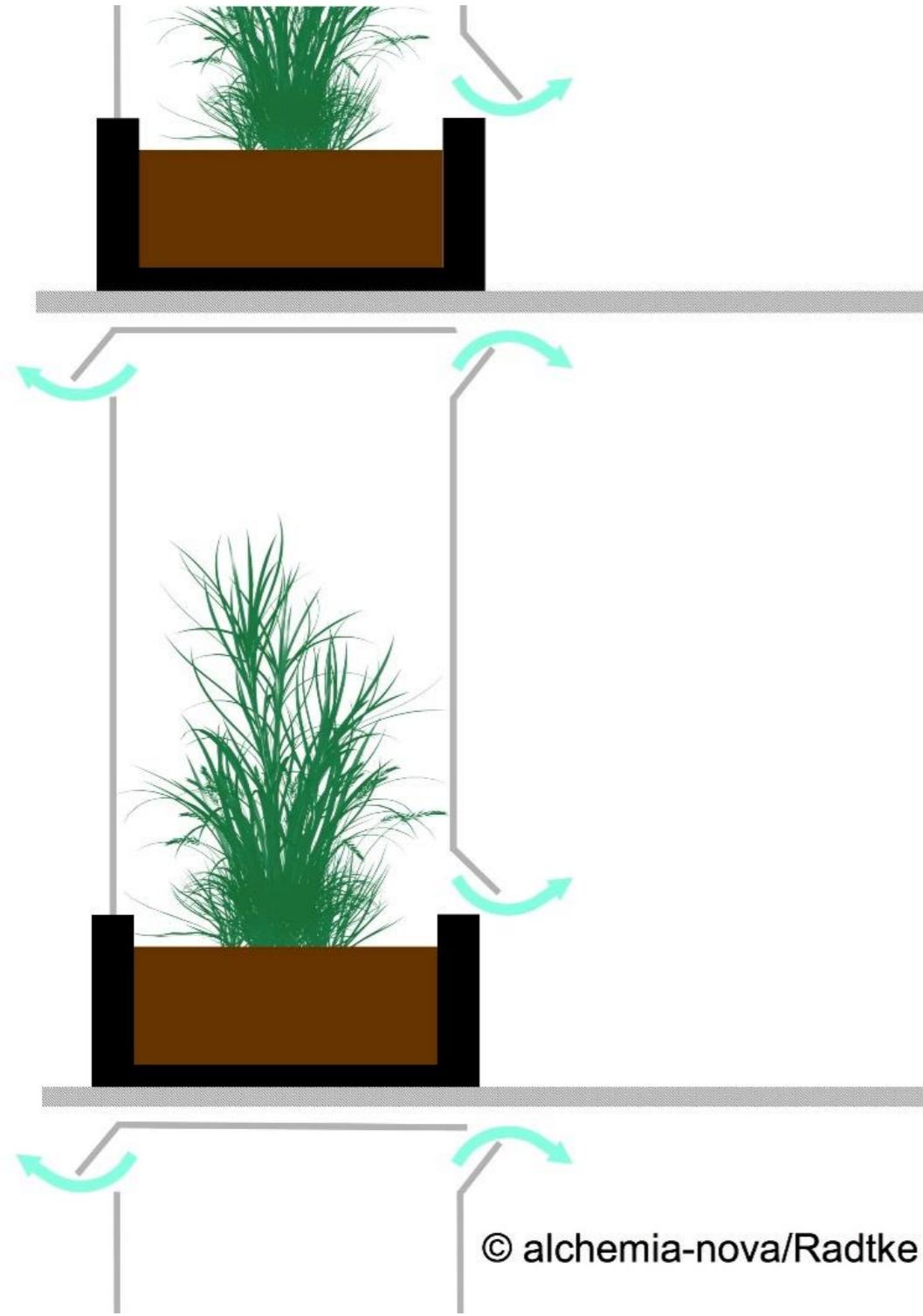
ReCO₂ST



Rainwater use in wintergarden and air treatment



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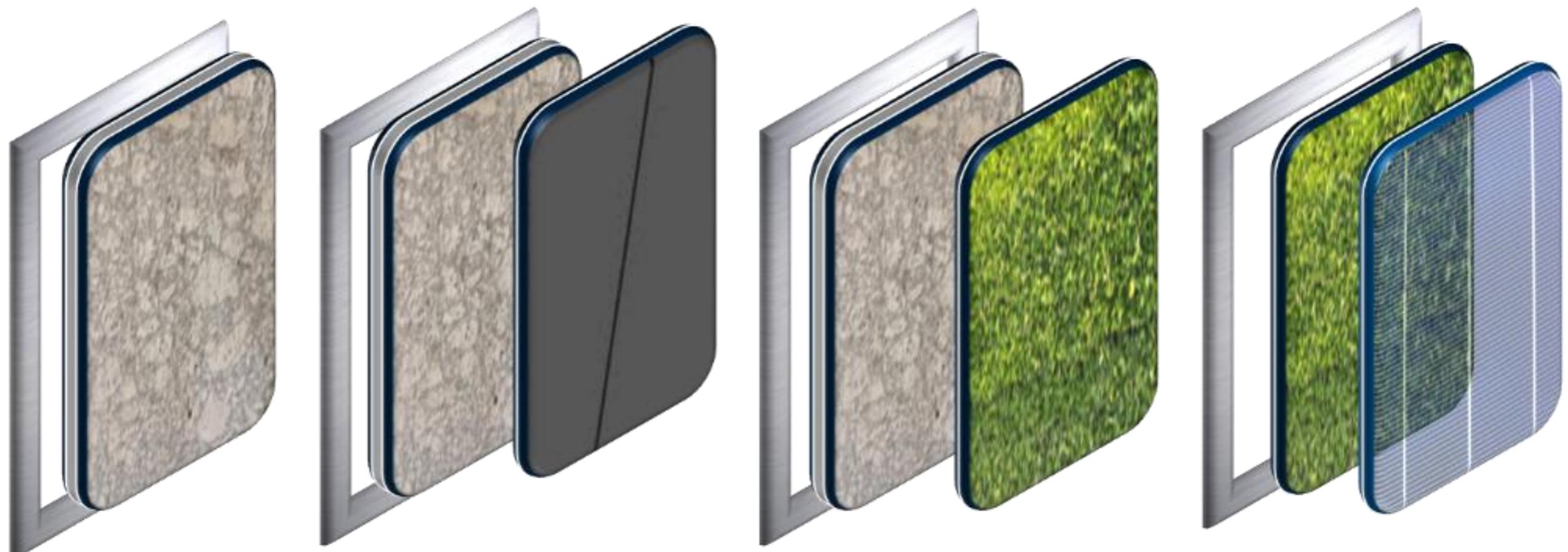




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PVadapt



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Deconstructability

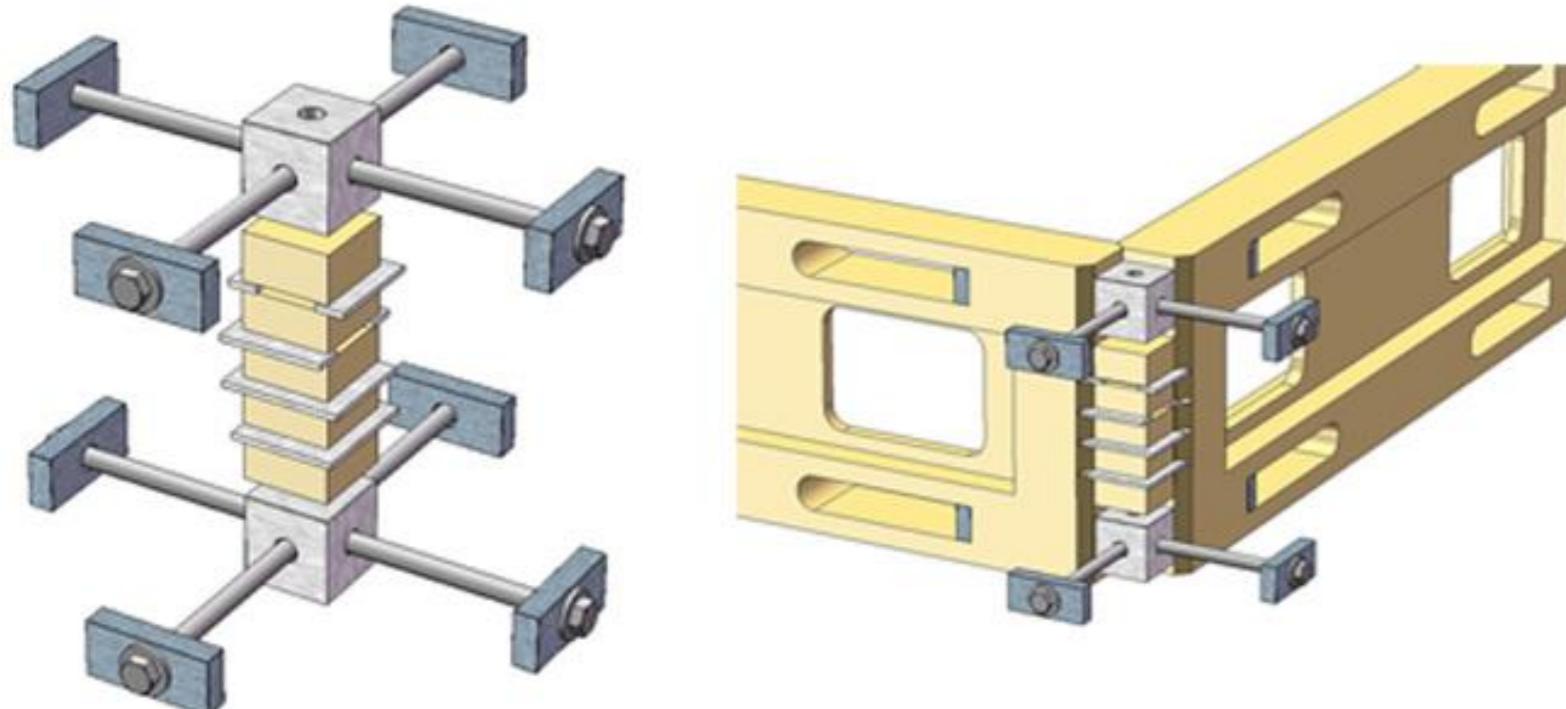
INDUO®-MODULRAUMTECHNIK BIETET
Mehrfachnutzen bei Produktion und Montage



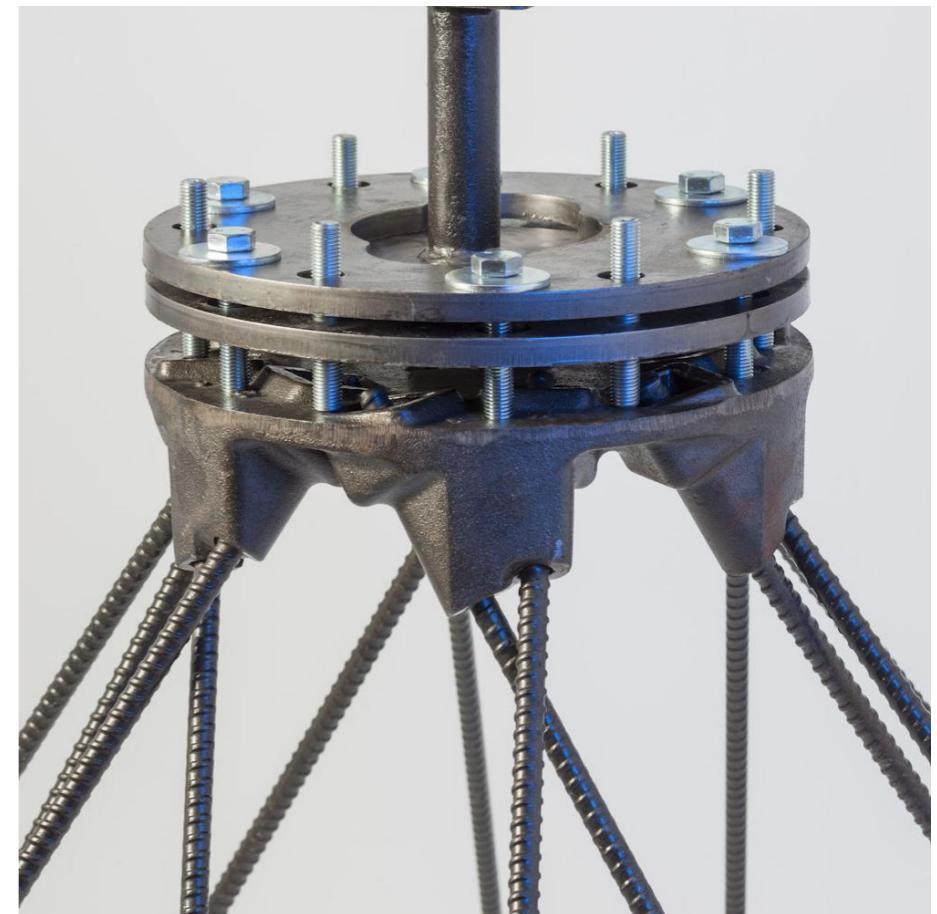
Die INDUO®- Modulraumtechnik basiert auf

- den induo®- Ankern
- den induo®- Modulecken

INDUO® wood systems, DE



Wood construction system Cross House, CH

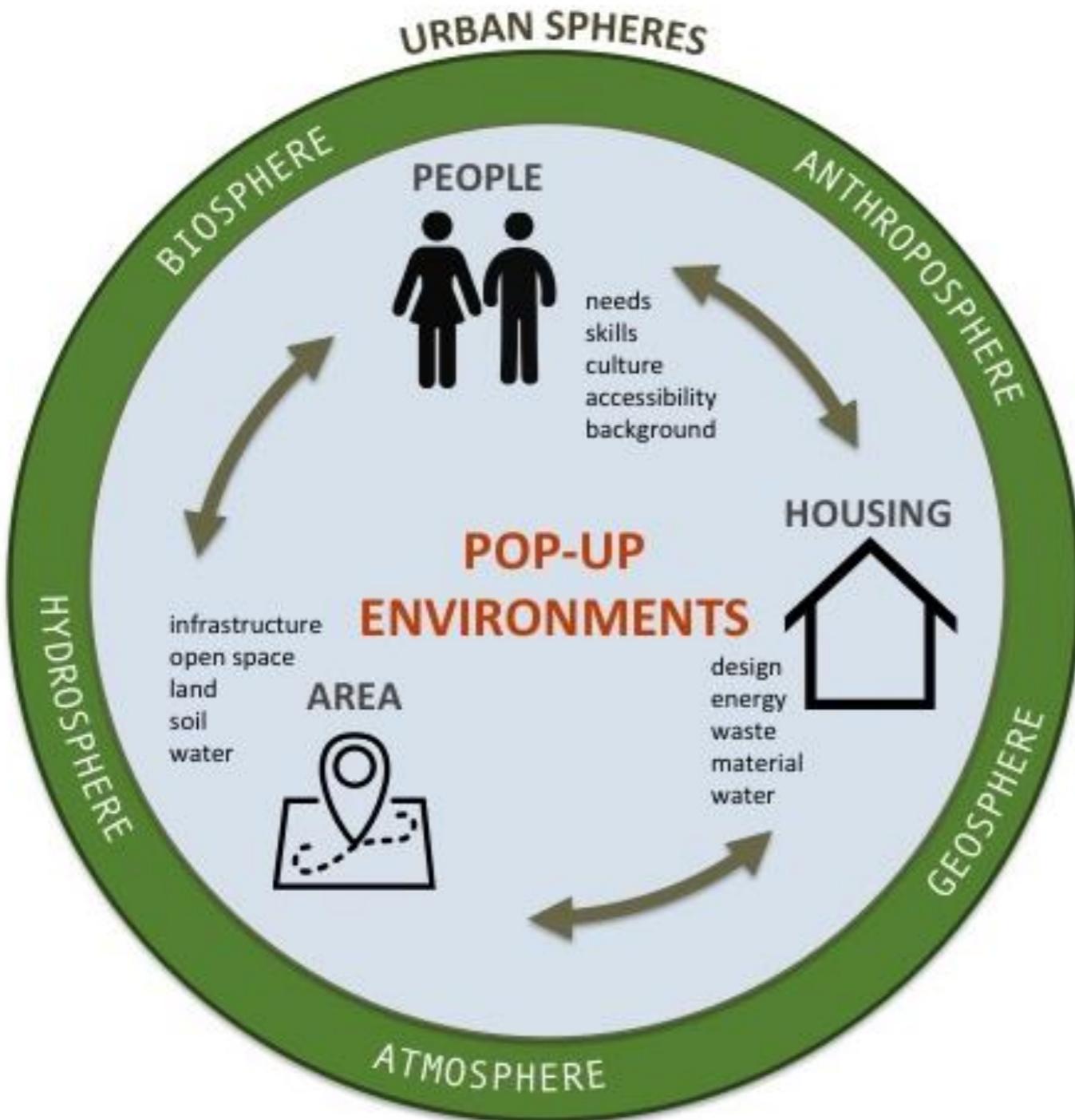


Spinnanker, AT



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pop-up housing solutions



W|W|T|F

VIENNA SCIENCE
AND TECHNOLOGY FUND



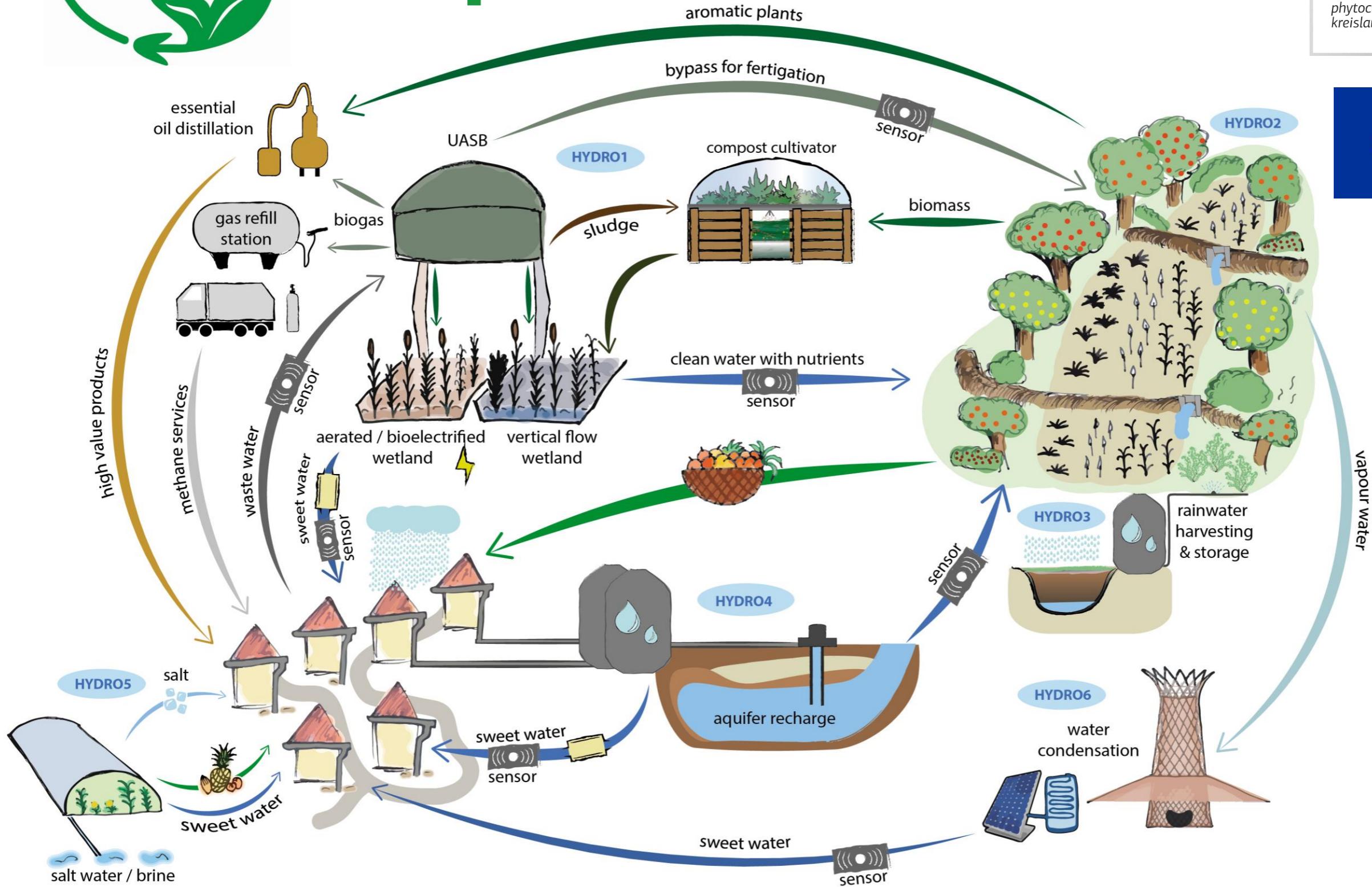
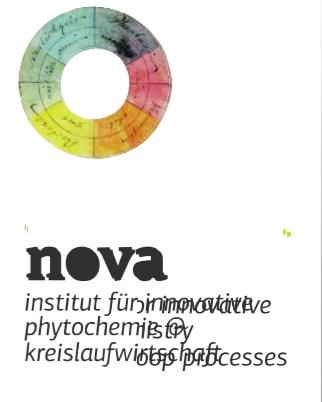


Wohnwagen





Closing water loops with NBS



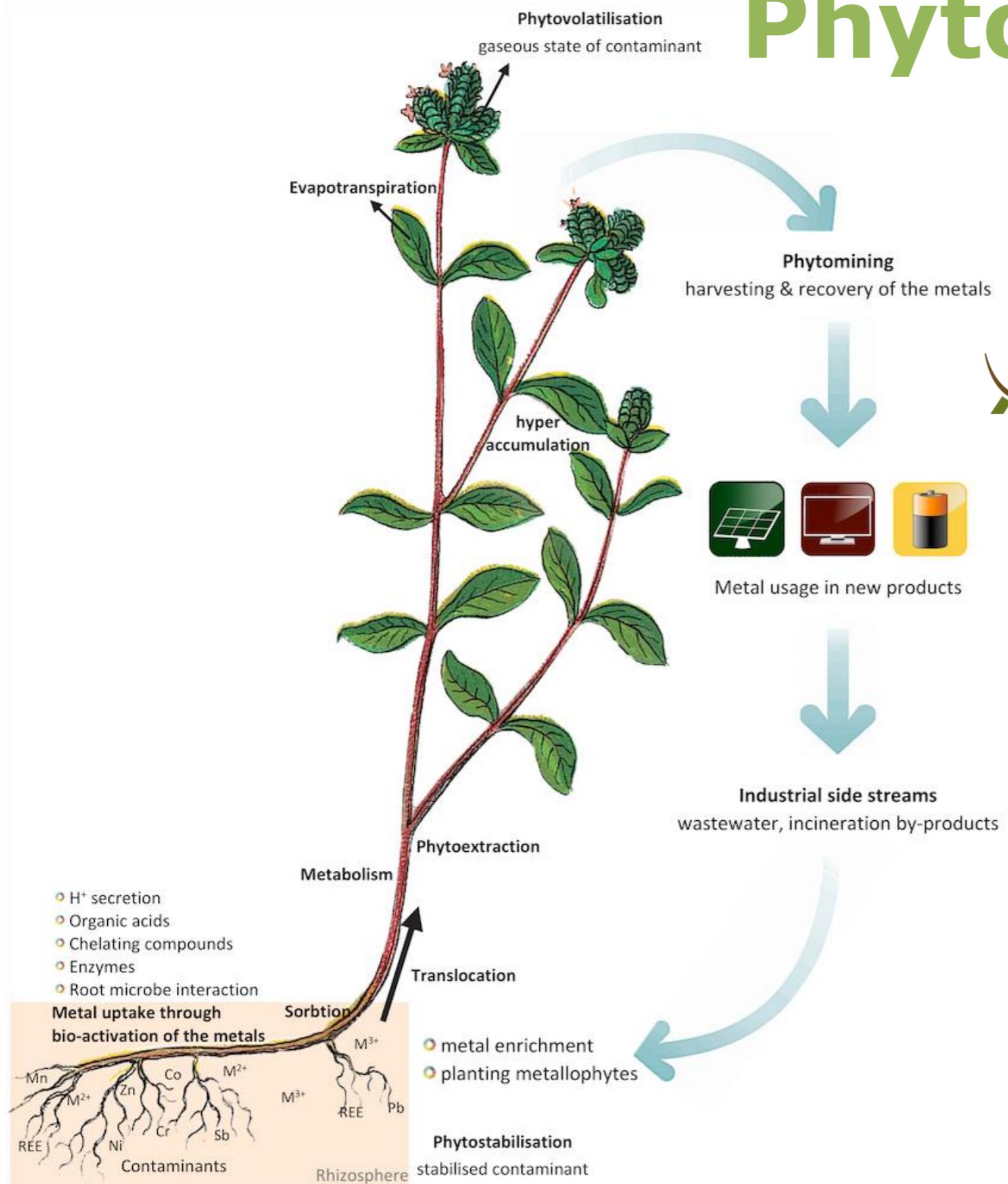


Phytomining

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AGROMÍNE





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Bioplastics Roadmap 2050



[https://nachhaltigwirtschaften.at
/de/projekte/biobasierter-
kunststoff-szenario-2050.php](https://nachhaltigwirtschaften.at/de/projekte/biobasierter-kunststoff-szenario-2050.php)

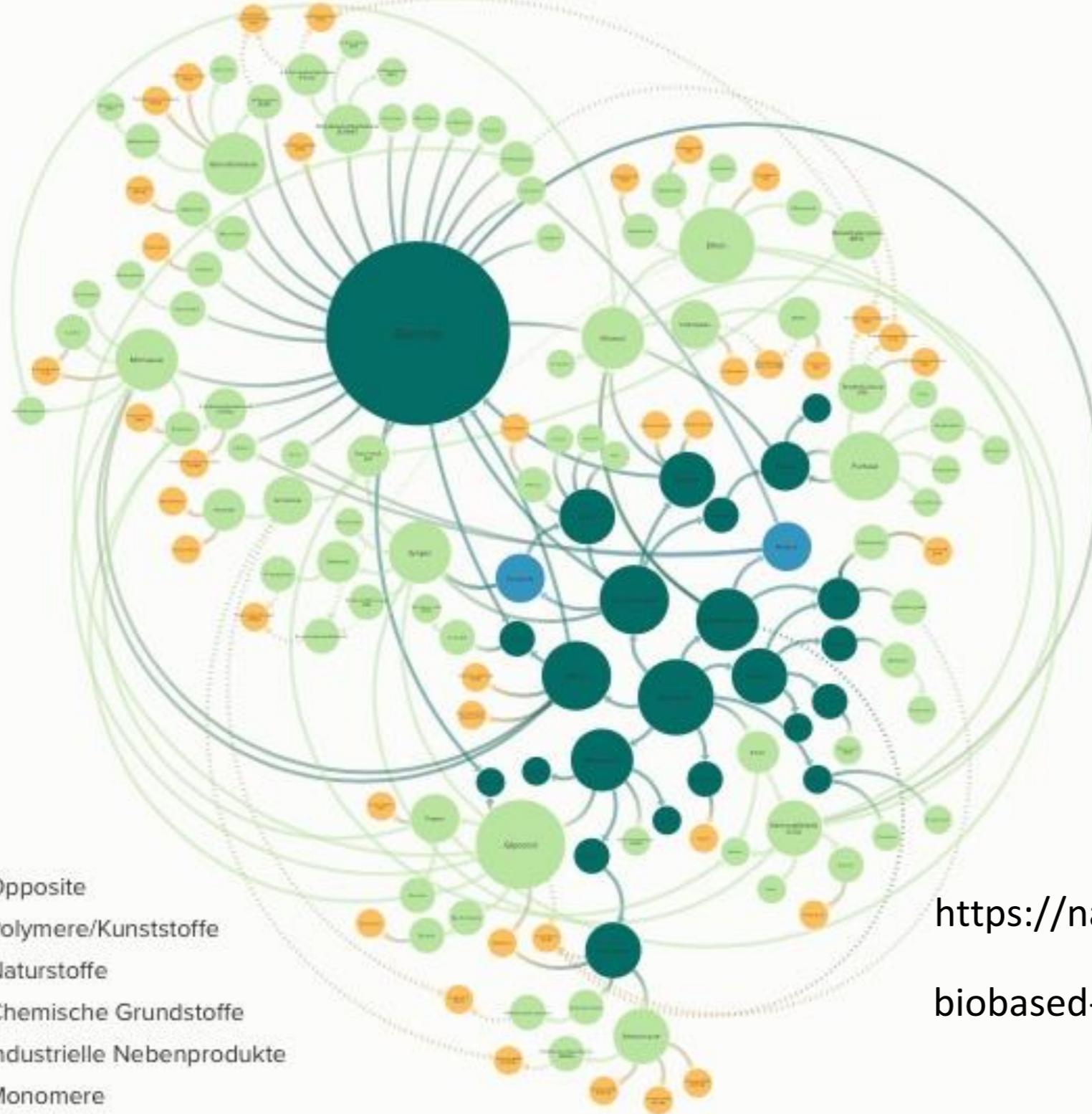


Bio-based substitution of fossil raw materials



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bm^{vft}



Legend

- Opposite
- Polymere/Kunststoffe
- Naturstoffe
- Chemische Grundstoffe
- Industrielle Nebenprodukte
- Monomere

[https://nachhaltigwirtschaften.at/en/projects/](https://nachhaltigwirtschaften.at/en/projects/biobased-substitution-fossil-raw-materials.php)

[biobased-substitution-fossil-raw-materials.php](https://www.kumu.io/alcn/c-mfa-o)

<https://www.kumu.io/alcn/c-mfa-o>





Team

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**Thank you for your attention !
We are looking forward to implement circular
economy solutions !**



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bioversum
nature inspired systems



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