

Towards a *real* future shaping ecosystem: *How to get to the next level?*



an interactive impuls on ecosystem thinking

architect Mathias Lehner MSc, DRESO Re-Building Europe Rotterdam. *July 12, 2023 11:30-11:40 +10 min Q&A*

“The basis of everything is economy.”

(VVD Elderman, July 2023, Zaanstad Municipality)

Economy?

...or...

Ecology?



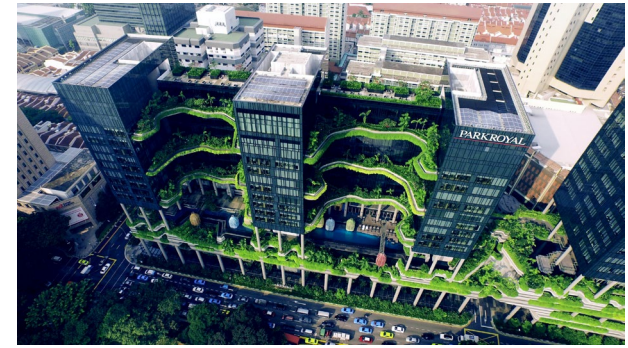
“Humans have a special position in comparison to other forms of life.”

(Freely after Crutzen)

Special?

...or...

Same?



*“Make space for nature
in public realm and buildings?”*

One of five principles in ‘Ruimte Maken’ Omgevingsvisie Zaanstad 2040 en verder

Nah, no money

...or...

Yep, I go for long term

How to get to the next level?

an impuls in ecosystem thinking



Welcome in a poly-crisis...

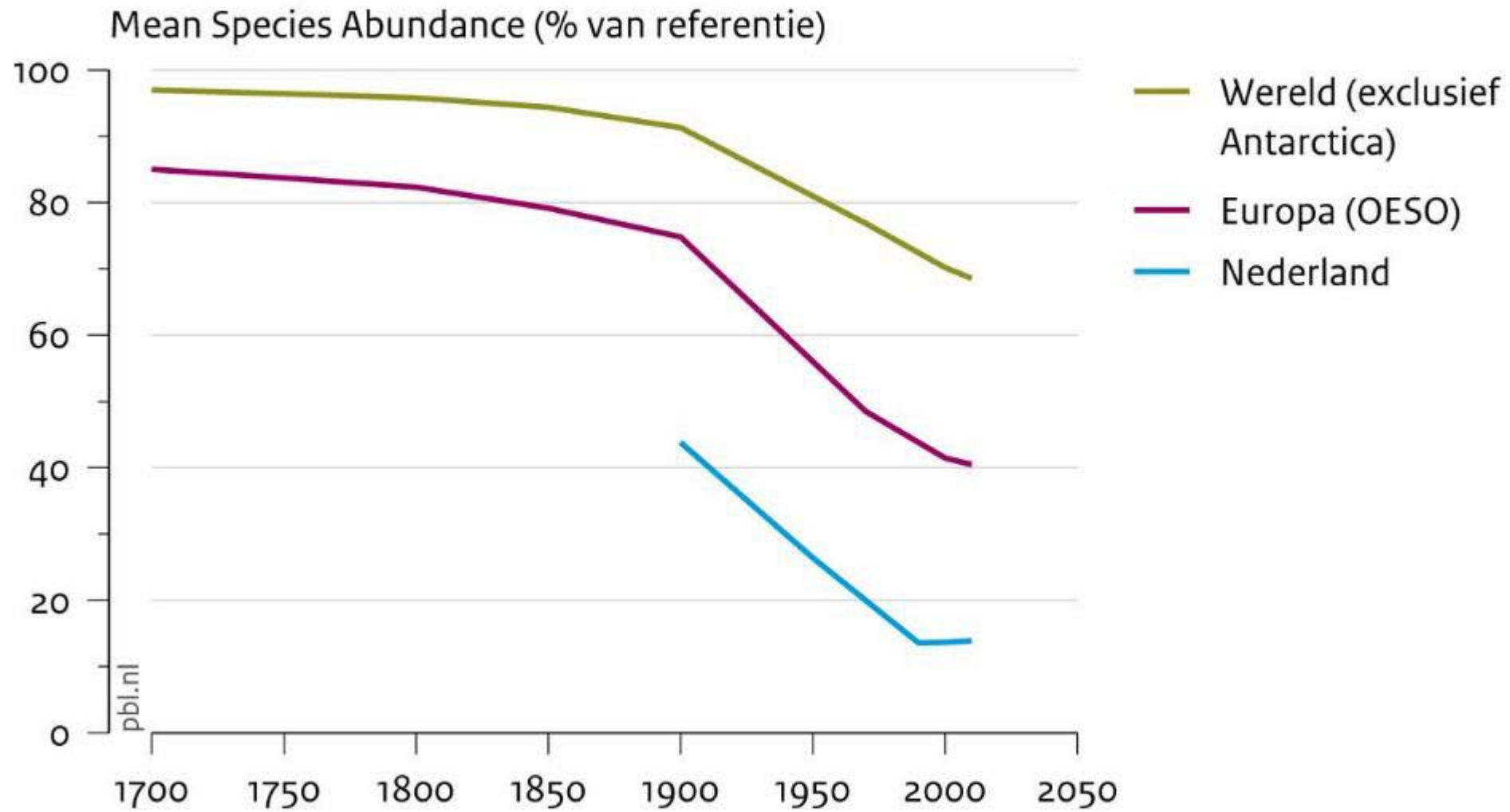






Trauermarsch für den Pizol Gletscher, St. Gallen. Schweizer Vereinigung für Klimaschutz. September 2019 © Zeit Online

Biodiversiteit



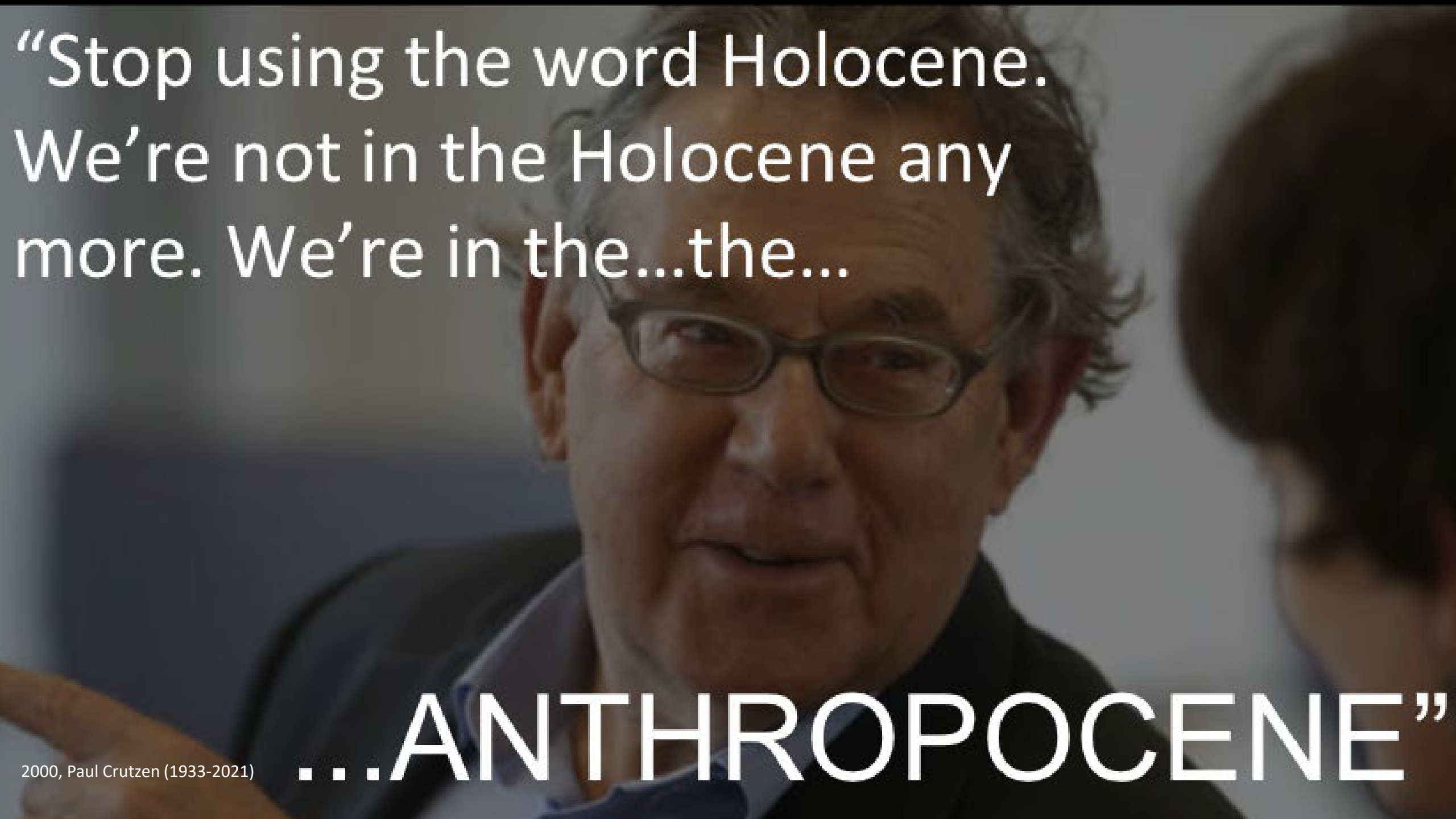
„Krise kann ein produktiver Zustand sein.

Man muß ihr nur den Beigeschmack der Katastrophe nehmen.“

- Max Frisch



Lil Dicky, Earth, 2019



“Stop using the word Holocene.
We’re not in the Holocene any
more. We’re in the...the...

...ANTHROPOCENE”

News ▸ PROVADA lanceert thema 2023: WE CAN BE HEROES



PROVADA lanceert thema 2023: WE CAN BE HEROES

11 November 2022

De wereld is op zoek naar een 'reset' voor een nieuwe ecologische, economische en sociale balans. Een nieuwe balans tussen mens en natuur, tussen economie en een gezonde planeet. Een nieuw verhaal voor een duurzame toekomst. We zitten middenin de transitie, zoveel is duidelijk. Maar wanneer bereiken we het kantelpunt?

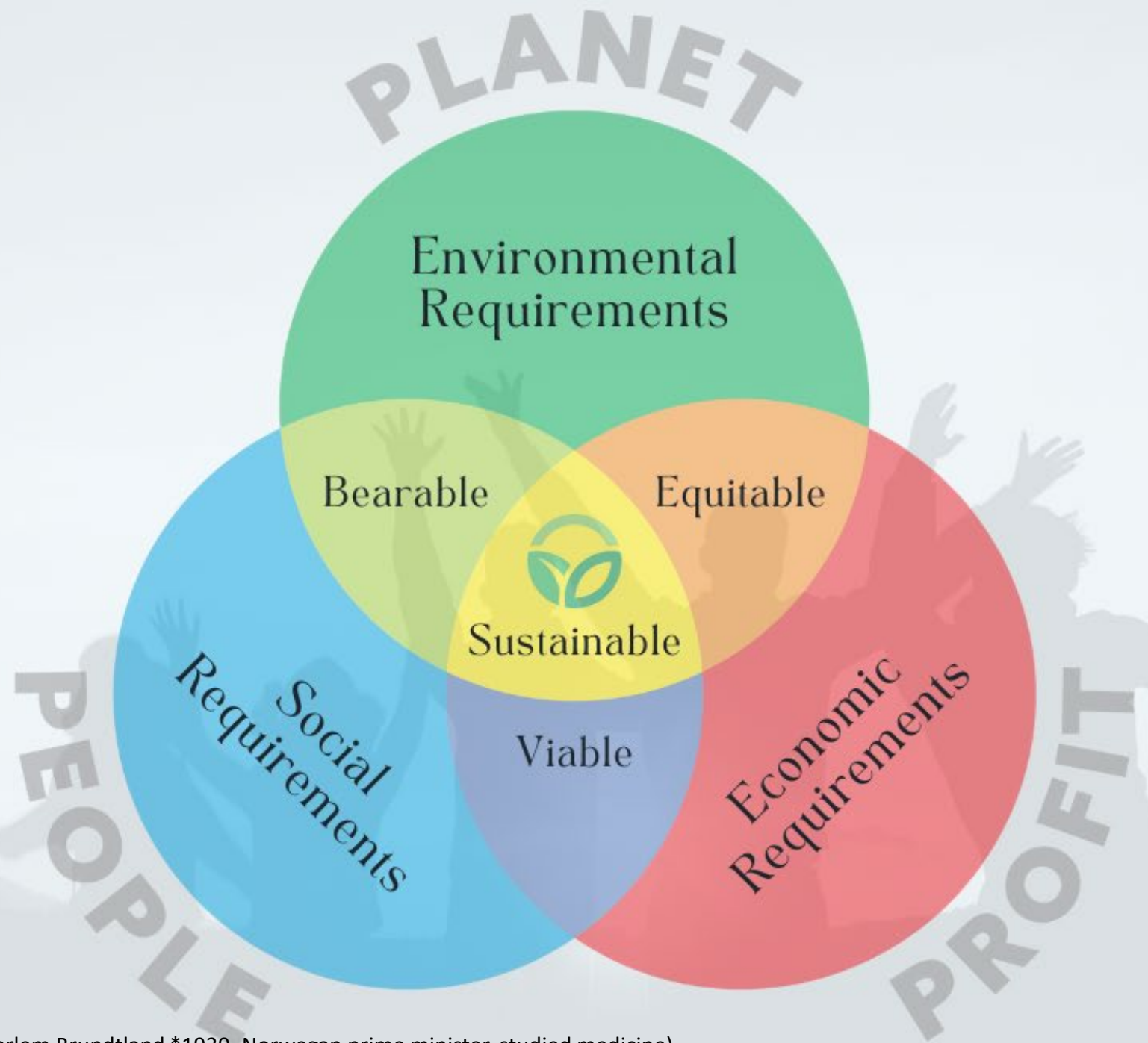
We hebben helden nodig die systemen doorbreken en mensen en organisaties activeren om samen impact te maken. Positieve impact op de gebouwde omgeving.

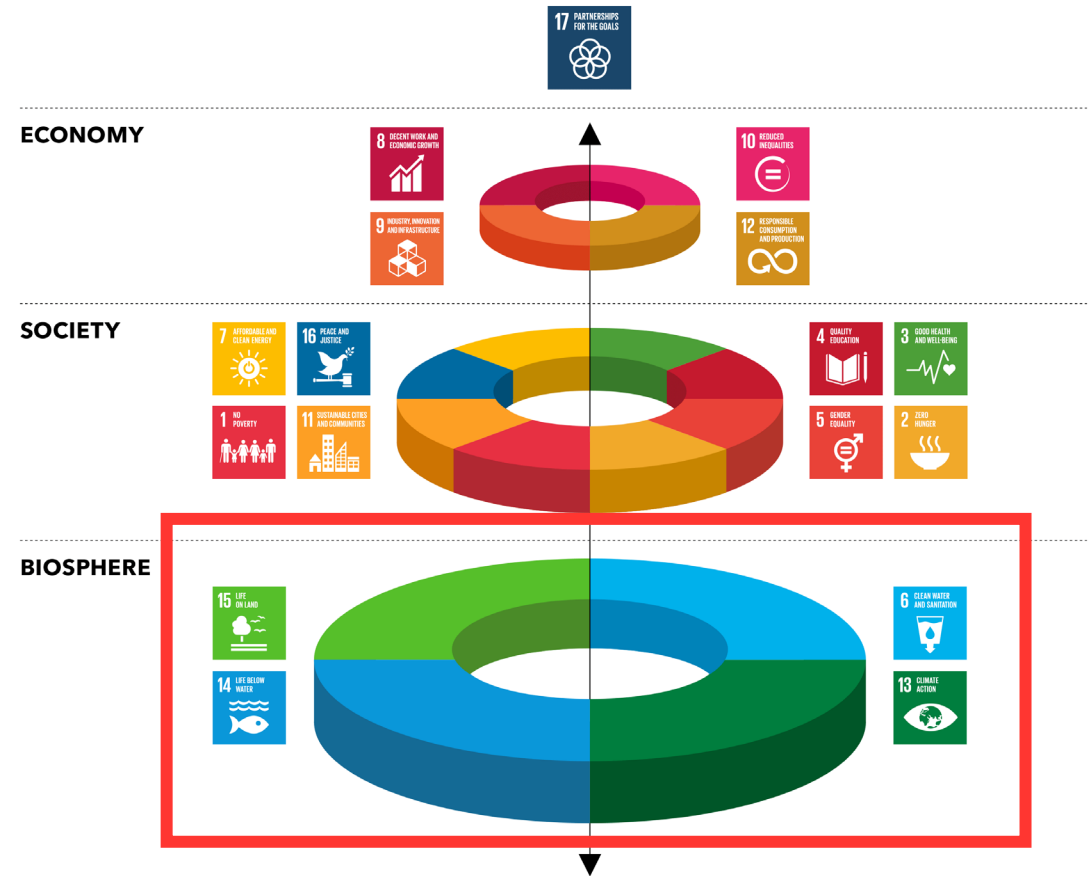
De tijd van praten is echt voorbij. We moeten samen in actie komen, bottom up en top down. We all can be heroes.

But we're absolute beginners
We're certain to succeed

David Bowie, 1986

ecosystem thinking – basic principles





This figure illustrates the intertwined nature of social-ecological systems, and, by extension, the SDGs that are designed to effect progress within these systems. Actions on the SDGs are best informed by a systemic view and thus better delivered in partnerships that

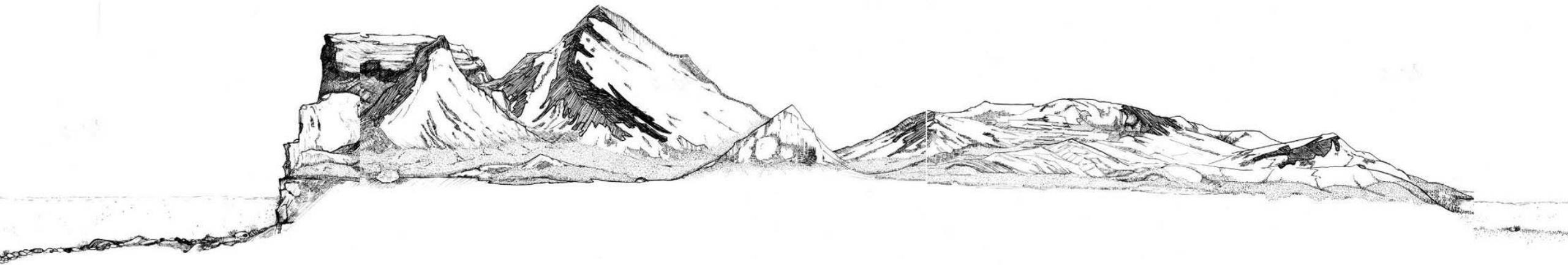
bring a broader perspective to point solutions. As Folcke, et al (2016) argue, "The focus is shifting from the environment as externality to the biosphere as precondition for social justice, economic development, and sustainability."

REDRAWN FROM SOURCE: Stockholm Resilience Centre (SRC) • SRC & IIASA, 2016 • Rockström, J and Sukhdev, P. 2016
Folke, C., R. Biggs, A. V. Norström, B. Reyers, and J. Rockström. 2016. Social-ecological resilience and biosphere-based sustainability science. *Ecology and Society* 21(3):41

www.dnvgl.com

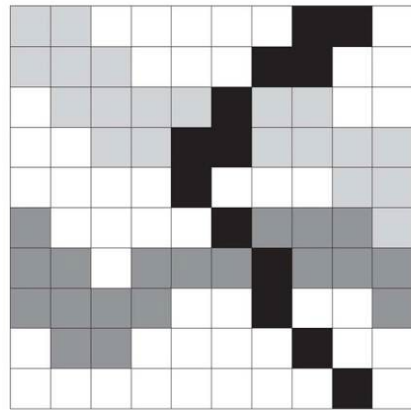


Nextcity: seeing the city through 'nature-inclusive' glasses

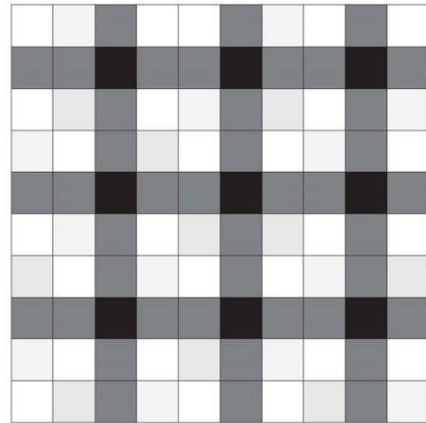


urban nature is a rocky landscape

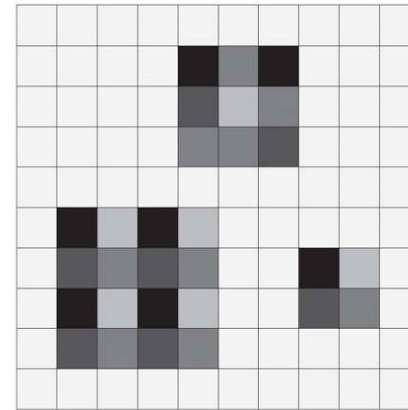




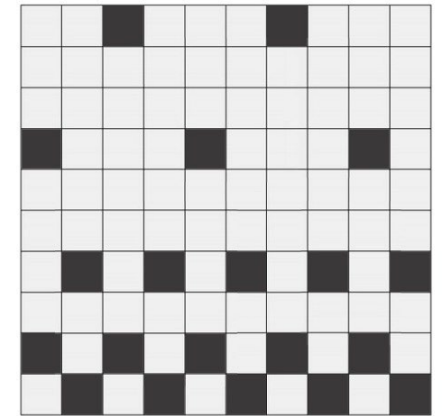
Connections



Robustness



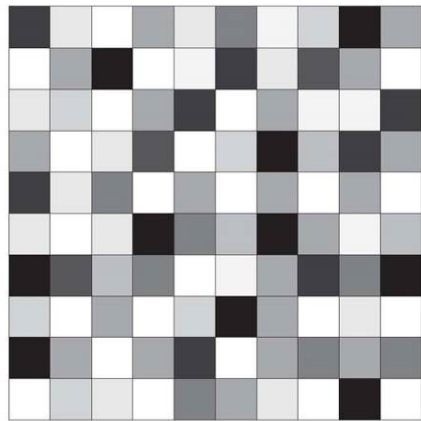
Modularity



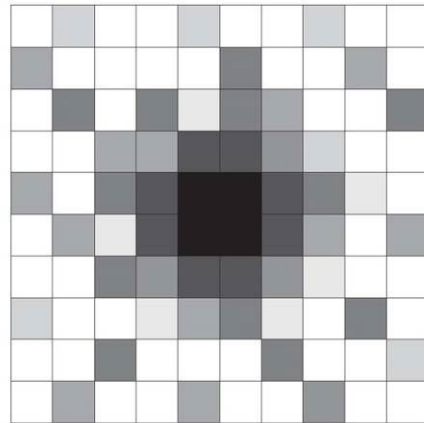
Porosity



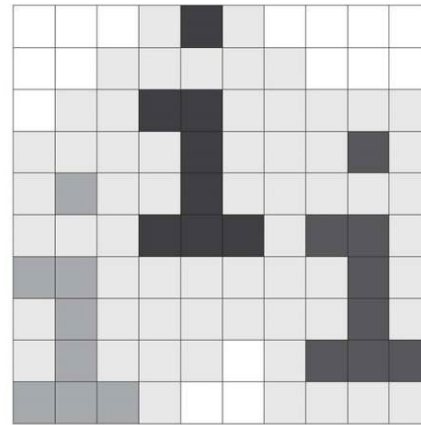
Rendering via M&A garden project.



all forms of diversity

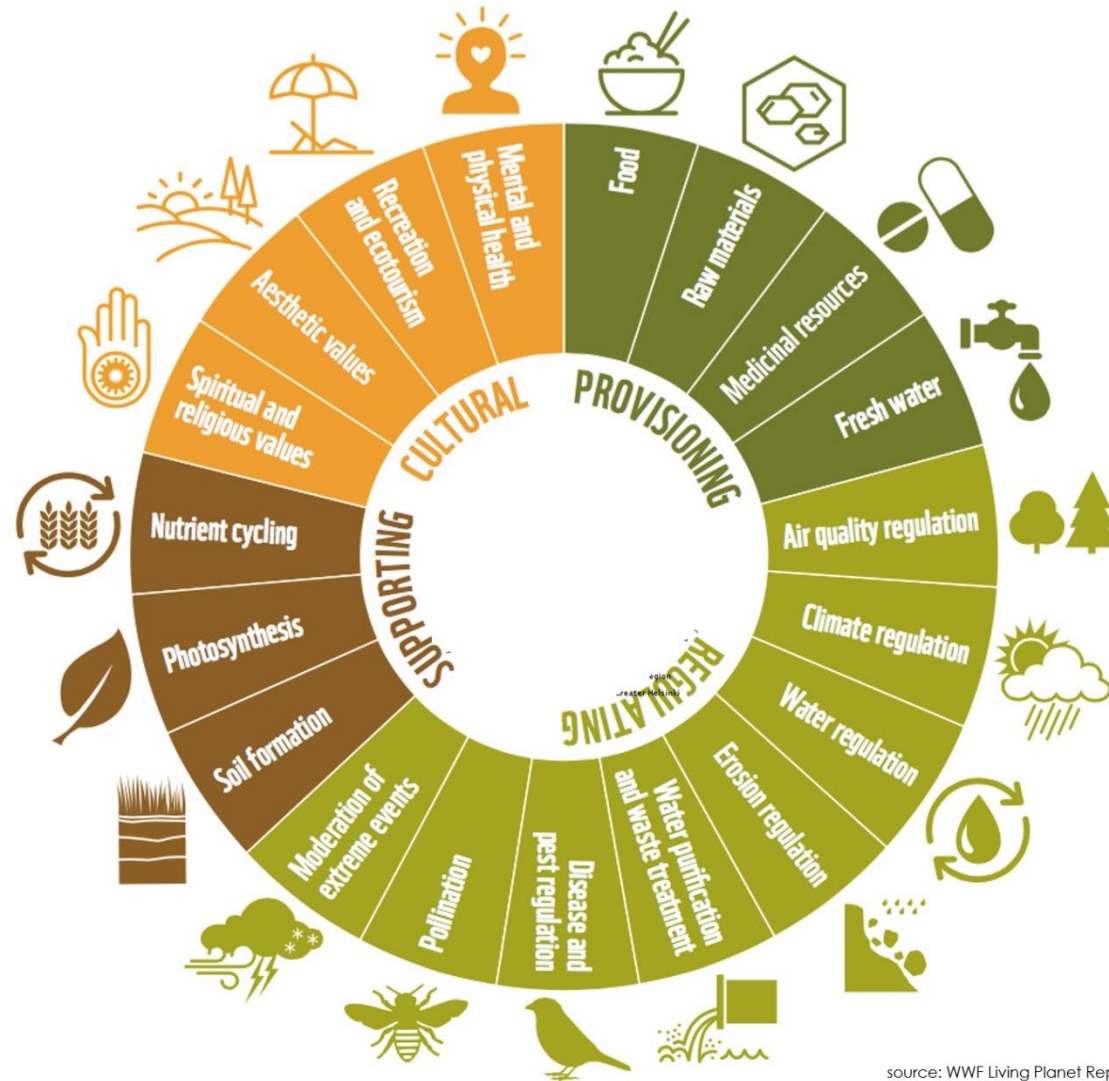


stewardship

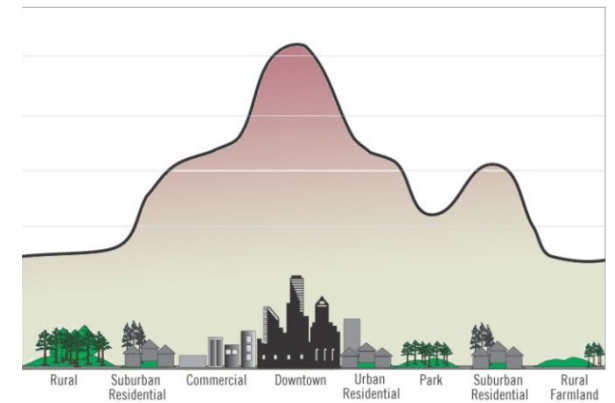


communication





source: WWF Living Planet Report 2016



ecosystem thinking and values

VALUES PRODUCED BY A RICH ECOSYSTEM

(micro)Climate

- retention of water, cooling urban heat islands, heating cost isolation

Culture

- attractivity of streets and cities, identification

Ecology

- stabile eco-systems, services, thriving populations

Economy

- green real estate sells, biodiverse neighbourhoods are liked more

Health

- producing oxygen, cleaning air/fine dust, people exercise/feel better, less consults, 'healthy cities'

Recreation

- softening city noise, quality of life, reduction of transportation

Social

- experiencing the seasons, involving locals, empowerment, engagement/stewardship, meeting fellow citizens



Arcadis: Healthy City Index (Gezonde Stad Index), 2022



Groen: goed voor de gezondheid

- Samen groenten kweken, veel planten op kantoor / in woning
- Bevordert vitaliteit, creativiteit en stimuleert ontmoetingen
- Groene woonomgeving: men voelt zich vaker gezonder en is minder vaak ziek
- vermindert stress; alleen al het zien van natuur een rustgevend effect uitgaat.
- gevarieerder spel van kinderen
- Kinderen in groene wijken 15% minder vaak last van overgewicht
- Appelbomen & schoolplein: kinderen helpen onderhoud, oogsten fruit & ontdekken gezond voedsel



ecosystem thinking linking ecology and economy









Investing in a nature-inclusive city tackles multiple aspects of the poly-crisis

Table 1: Most NbS Interventions tackle multiple risks







Nature-based Solution	Risks tackled			
	Flooding	Urban "heat Island" effect	Pollution	Loss of biodiversity
Green roofs & facades	★★★	★★★	★★★	★★★
Parks	★★★	★★★	★★★	★★★
Street trees	★★★	★★★	★★★	★★★
Green/blue Infrastructure	★★★	★★★	★★★	★★★
Allotments & community gardens	★★★	★★★	★★★	★★★

Including nature is the cornerstone for a future-proof municipality



-  **REAL ESTATE VALUES**
Houses surrounded with green and blue elements have a higher property value.
-  **HEALTH**
Greenery decreases sick leave and promotes healthier and more productive inhabitants.
-  **CO₂ - SEQUESTRATION**
Trees capture CO₂ from the air, combatting climate change.
-  **AIR PURIFICATION**
Nature provides one of the best solutions for polluted air.
-  **COOLING**
Water, green strips, trees and parks mitigate the heat island effect and provides a pleasant living environment.
-  **WATER REGULATION**
Green infrastructure is a crucial link for every climate (adaptation) strategy.
-  **WATER STORAGE**
A green environment helps to regulate water and enlarges the storage capacity, preventing damage from flooding.
-  **BIODIVERSITY**
Green areas give an impulse to (urban) biodiversity.

Nature-inclusive design creates green values and economic benefits

 REAL ESTATE VALUES	 GEZONDHEID	 AIR PURIFICATION	 COOLING	 WATER STORAGE	 SOCIAL COHESION
<p>On average, houses surrounded with green and blue elements have a 6-12% higher property valuation, rising to a maximum of 30%.</p>	<p>A green environment can lead to 25% less depression, 15% less migraine attacks, 23% fewer asthmatics and 15% fewer people who are obese.</p>	<p>Annually, 12,000 people die prematurely as a result of polluted air. A tree with a diameter of 50 cm captures 500 grams of particulate matter per year, equaling a car ride of 7,500 kilometers.</p>	<p>Trees provide cooling. One tree on a sunny day has a cooling capacity of 20-30 kW. Hence, the cooling capacity of one single tree is similar to 10 ACs.</p>	<p>Green and blue elements in a neighborhood enlarge the water storage capacity and contribute to a climate-adaptive municipality. A green roof can hold up to 80% of rainfall and a single tree can retain up to 2,877 liters of water per years.</p>	<p>Joint activities bring people together in a neighborhood. A vegetable garden that is managed by a group of people in the neighborhood can provide an important social stimulus in a neighborhood. When increasing greenery with 1%, social cohesion in a neighborhood goes up by 0.6%.</p>
<p>This means that an average house worth 2.6 ton, has €15,600 – €31,200 in green added value up to a maximum of €78,000.</p>	<p>10% more greenery can save an average municipality €717,547 in health costs and costs related to absenteeism.</p>	<p>A row of 10 trees, capture 5 kilogram of particulate matter per year. This capture is worth €1,885 in prevented health costs.</p>	<p>10% more trees in a neighborhood can save €40 – €75 in annual energy costs per home.</p>	<p>Increasing the water storage capacity, can lead to annual savings of €2,983,209 in avoided damage of flooding.</p>	<p>A 10% increase in greenery in a municipality, can lead to annual costs savings of €308,310 as a result of avoided relocation.</p>

ecosystem thinking - the Dutch context today

Kettingreactie Spel

Gebruik grote opgaven als motor voor de stad

Wat Kettingreactie willen wij overheden, ontwerpers en ontwikkelbare schiedgen om slimme, integrale oplossingen te zoeken voor hun dorpen en steden. Kan de woningbouwopgave de energiegelopere helpen of kan de mobiliteitsrevolutie worden ingezet om de gezondheid van de bevolking te stimuleren? Speel het spel en ontdek wat er allemaal mogelijk is.

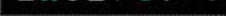


Kiemstrategie 2



Laat duurzame stromen stromen met kleine subsidies en het bieden van ruimte. Dit helpt stimuleren de initiatieven uit, waarvan de meeste wellicht mislukken, maar enkele zullen een doorslaand succes worden. Denk aan Burt Shostrom of het New York.

Doel: burgers

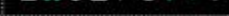


Een tripje waard 3



Onderzoek aantrekkelijke en bijzondere bestemmingen aan de stadskant en in de natuur, zodat de steden en markten even interessant uit kan zijn en kan ontspannen.

Doel: overheid

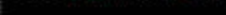


Deelfiets 3.0 3



Investeer in een optimaal systeem voor deelritten. Met de beschikbaarheid van de OV-fiets en het gebruik van de mobiliteits of stads app, zodat op termijn de deelfiets gebruikelijk wordt dan de eigen fiets - waarmee parkeren op bijstations kan worden vermindert.

Doel: markt

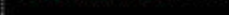


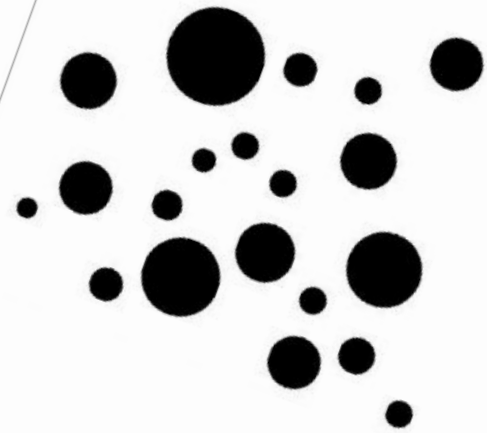
Buurtkantoor 3



Werkten naast je buurman! Maak in woonwijken woonkanten, zodat buurman en 222-ers dicht bij huis terecht kunnen om voorstellingen te delen en elkaar te ontmoeten. Denk aan vergaderruimtes, ontmoetingsruimtes en secretariaten.

Doel: burgers, markt, overheid





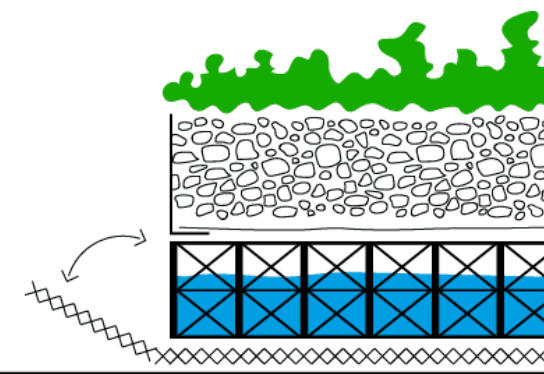
FIRST
GUIDE
FOR
NATURE
INCLUSIVE
DESIGN





Kraaijvanger / Vincent van der Meulen: Building with a positive footprint, 2022

basic design examples to strengthen urban ecosystems



First 'polder roof' ([polderdak](#)) De Boel, Vesteda, 2016. Hans Van Heeswijk, Dakdokters. 700m²



Green façade, CIRCL, ABN Amro Bank, 2014-2016. Architecten Cie. 3.350 m2





Westcord Hotel Jakarta Amsterdam, 2018. [Search](#), Hortus Amsterdam. 16.500m2

Thank you for your attention.

What are your experiences in getting to the next level?