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IHS, institute for housing and urban development studies of Erasmus University Rotterdam

Tactical urbanism: How to plan towards carbon neutrality

Dr. Alexander Jachnow
Jachnow@IHS.nl

(thanks to Laura Quadros Aniche)

Global Urbanization

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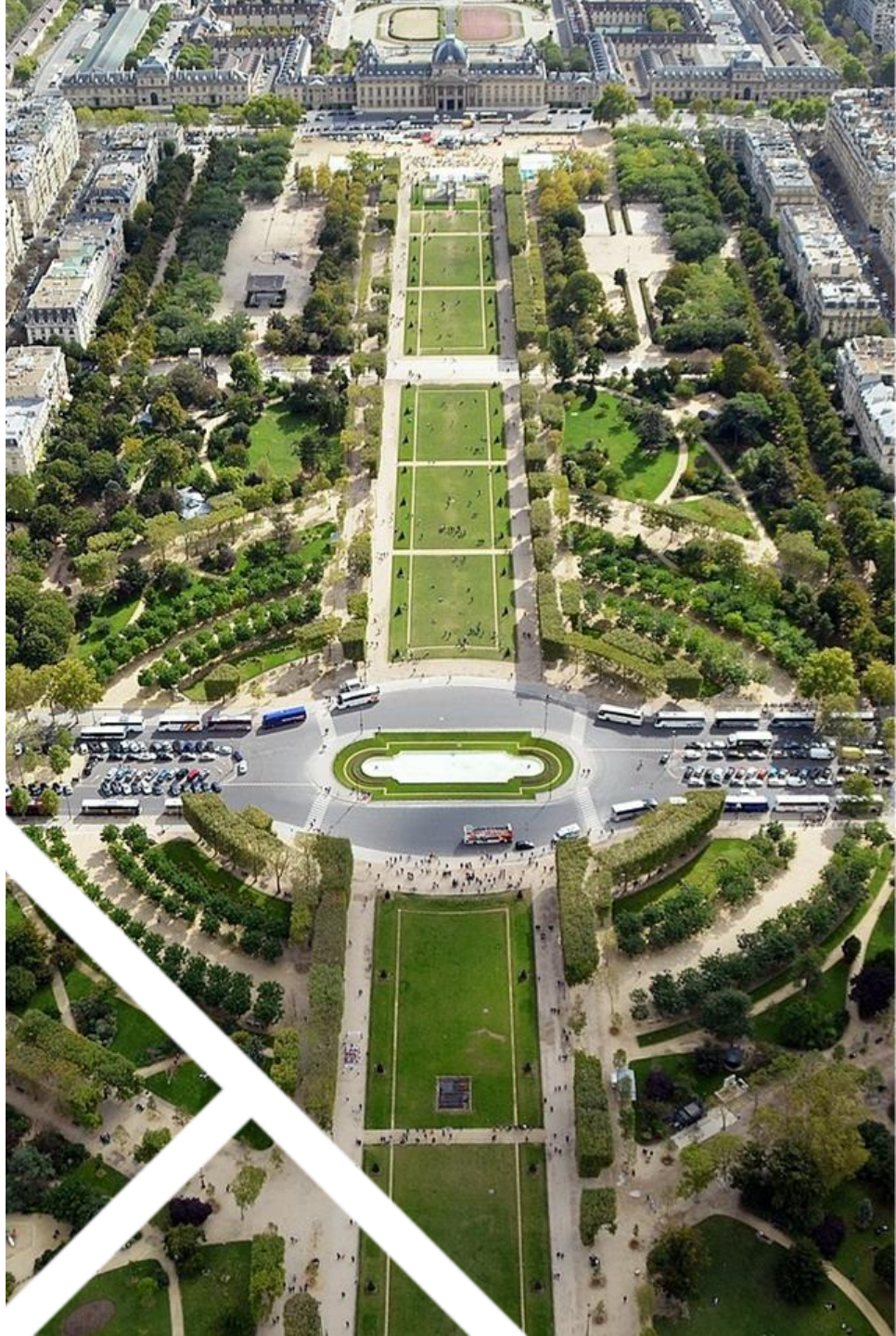
Introductory statement

- We need to change how we plan our cities. There are other relevant “currencies” for which a cost-benefit of our interventions and developments needs to be calculated.
- These currencies are environmental qualities (water and air quality, green spaces etc.,), social conditions (equity, social safety, social interactions, economic prospects) and the meaning of space (locational character and culture, access) – many of these interventions can be measured towards their contribution to **carbon neutrality.**
- These values need to be made part of a transition management, which can be introduced through **tactical approaches.**



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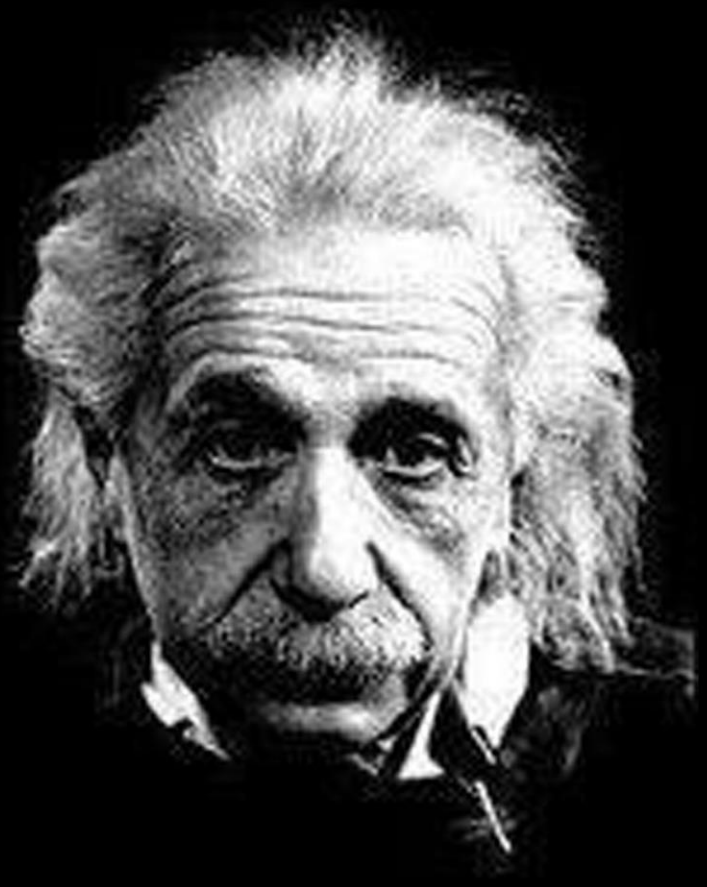
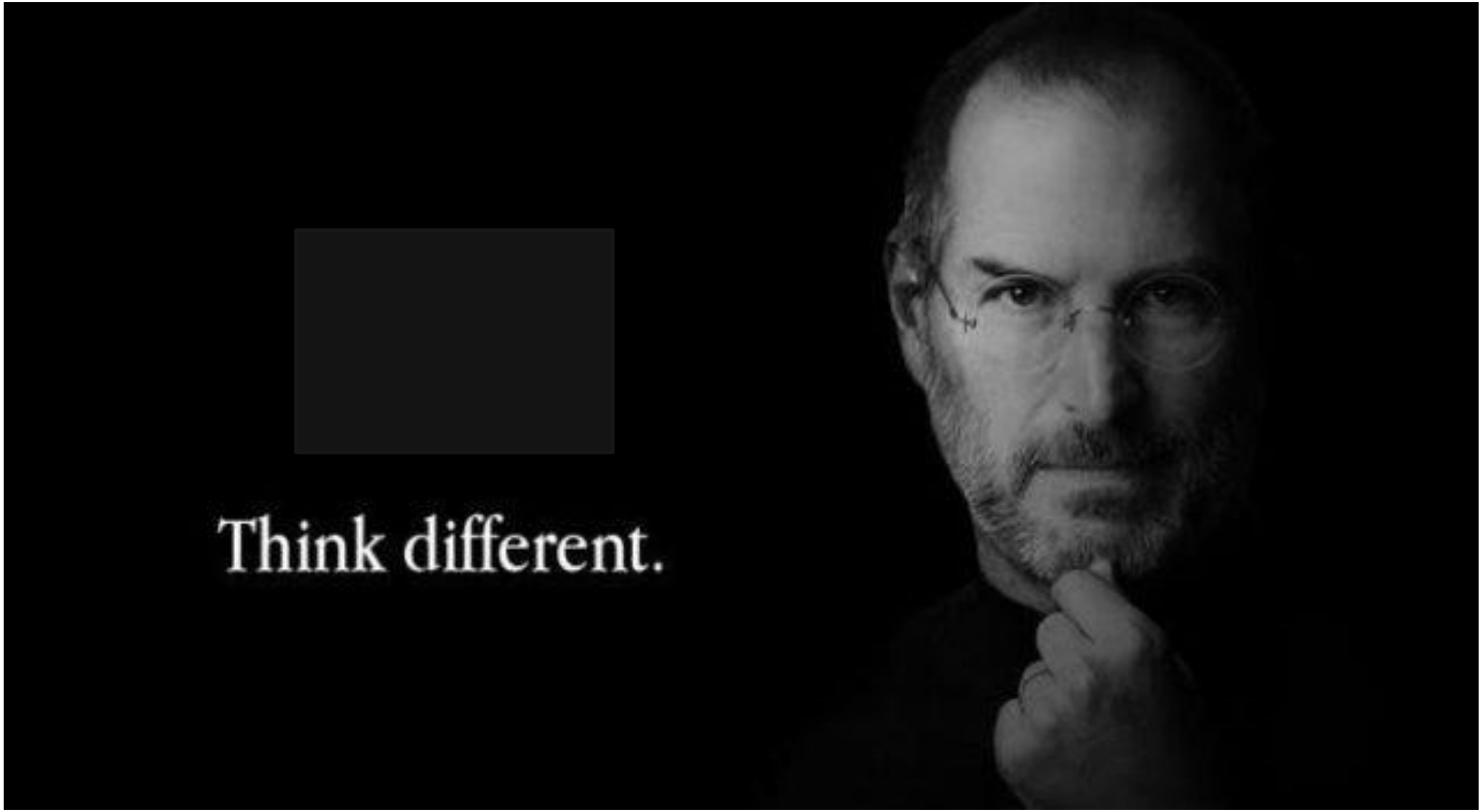
"WE CANNOT SOLVE OUR PROBLEMS WITH THE SAME THINKING WE USED WHEN WE CREATED THEM"




Think different.

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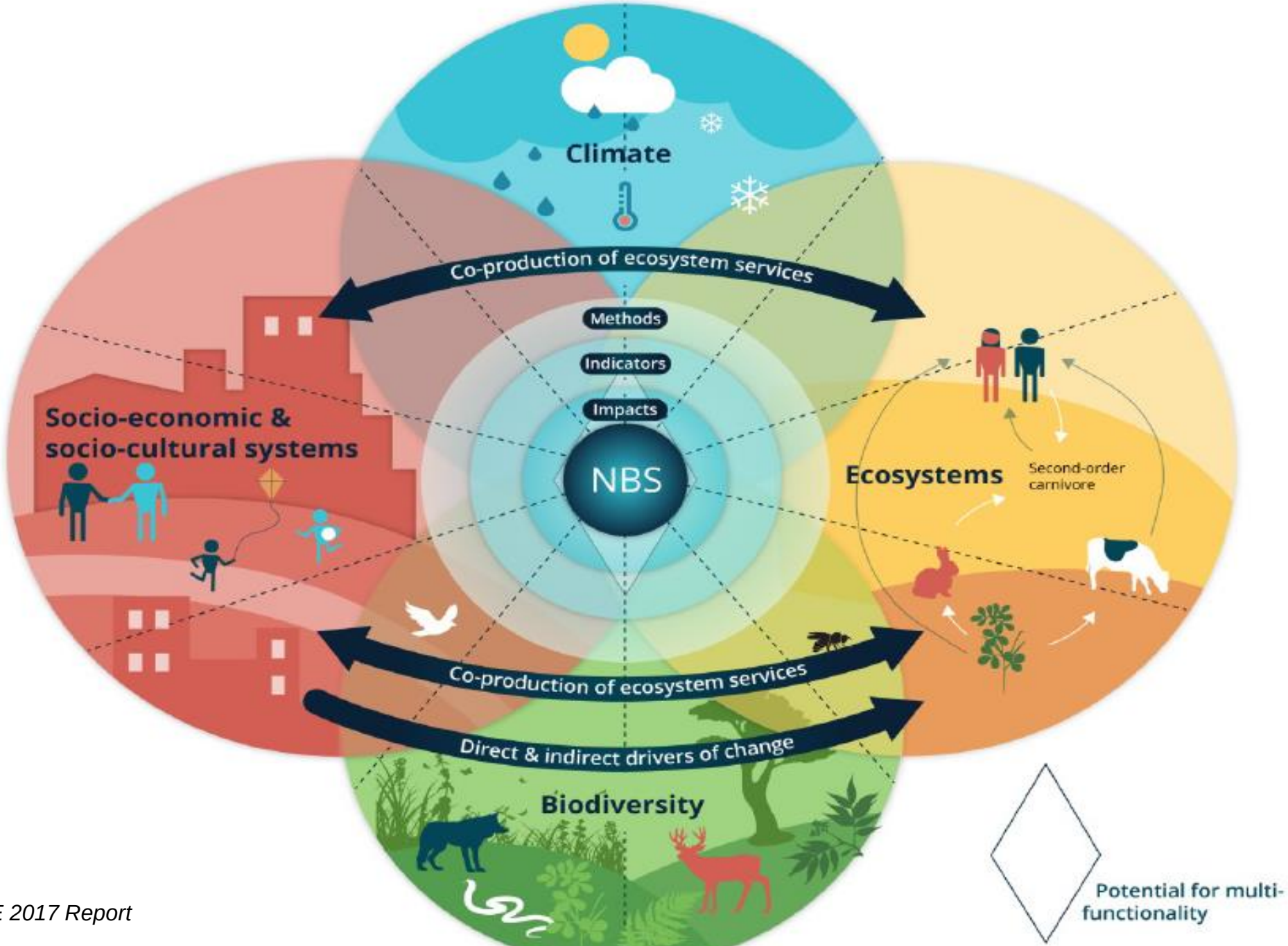

Source: EKLIPSE 2017 Report

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1. The Challenge

Nature under threat by the city (sustainability problem)

Damage to rivers and water bodies in cities:

- Pollution
- Encroachment and development on floodplains
  - Informal development
  - Real estate development
  - Agriculture and industry
- Over-engineering
- Over-use: waters as commons

Yamuna River, Delhi, India. Photo: yamunariverproject.org

Adapted from Paul Rabe, IHS, Erasmus University Rotterdam

Cities under threat by nature (resilience problem)

- Frequent flooding, exacerbated by climate change and human factors;
- Land subsidence due to large-scale digging of wells;
- Damage to human settlements, infrastructure and livelihoods

Central Jakarta, Indonesia; Photo: BBC

Adapted from Paul Rabe, IHS, Erasmus University Rotterdam

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Sustainable and Resilient cities

”Sustainable cities”

“Development that meets the needs of the present while safeguarding Earth’s life-support system, on which the welfare of current and future generations depends” (Griggs 2013)

UN Sustainable Development Goals (SDGs)

”Resilient cities”

“The capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience” (Rockefeller 100 Resilient Cities)

Climate resilience

Water resilience

Adapted from Paul Rabe, IHS, Erasmus University Rotterdam

Carbon neutrality :

1. Think beyond energy cycles

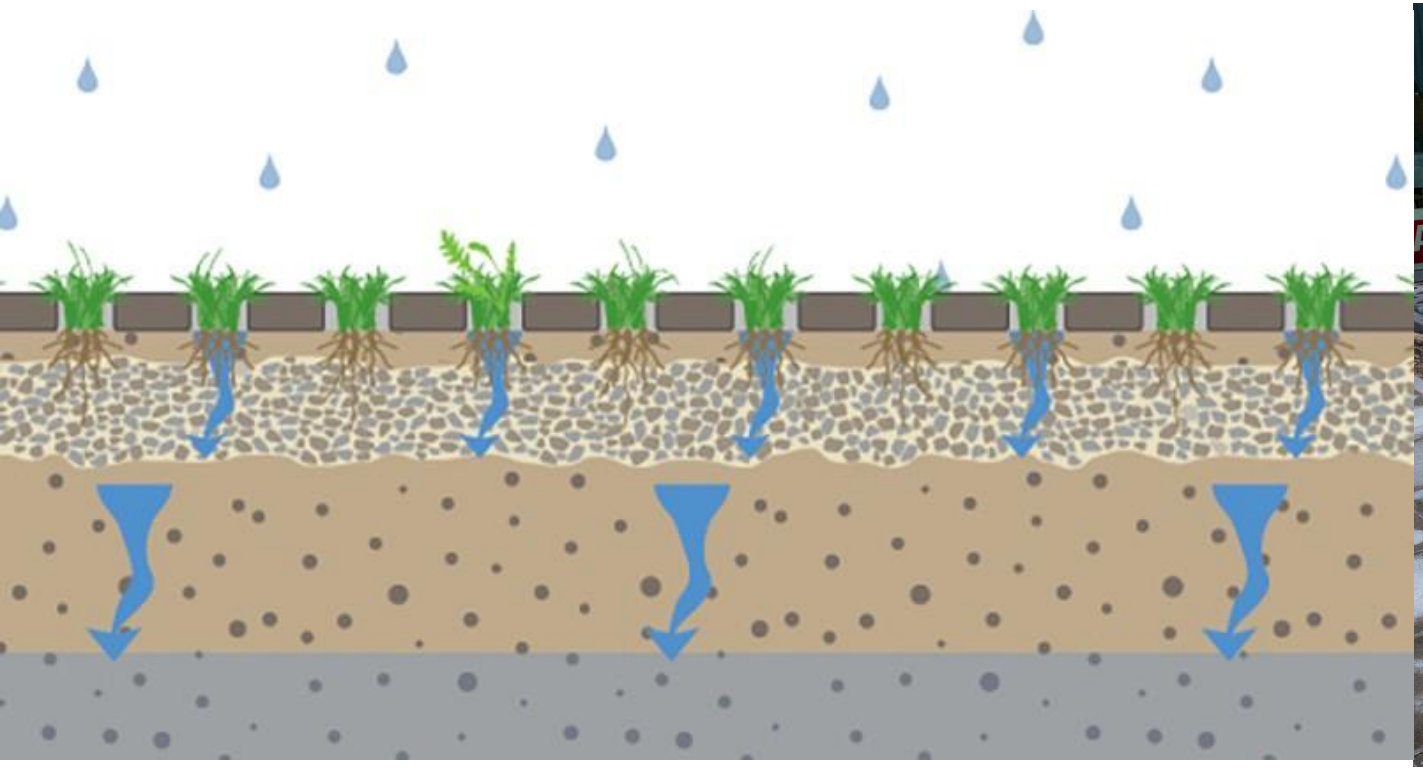
2. Planning plays a major role:

a) Urban morphology requires local adaptation

b) Think distribution of services from their spatial impact.

c) Create opportunities for : close access and adaptive mobility

Source: Amsterdam Rainproof



Source: Amsterdam Rainproof

How to introduce Low/No Carbon to urban environments

- The pathway for more **resilient cities** goes beyond controlling and maintaining nature outside urban boundaries.

- Nature provides **multiple benefits** including **ecosystem services** that are essential for sustainable cities, including clean water and air, food, and flood protection. These services are crucial for human economic activities, health, and well-being.

- Challenge: find the **balance** between development, use of natural resources and technology innovation, and the promotion of environmental sustainability and social benefits.

Ibirapuera Park, in Sao Paulo, Brazil. Photo: Fernando Stankuns

Looking at multiple definitions of Nature-based Solutions

“Actions to **protect**,
sustainably manage, and
restore natural or **modified ecosystems**,

that address societal challenges
effectively and **adaptively**,

simultaneously providing **human well-being and biodiversity benefits.”**

(Cohen-Shacham *et al.*, 2016, p. 5).

International Union of Conservation of Nature

Looking at multiple definitions of Nature-based Solutions

European Commission

"Living solutions inspired by, continuously supported by and **using nature**,

which are designed to address various societal challenges in a **resource-efficient** and adaptable manner and

to provide **simultaneously economic, social, and environmental benefits."**

(Maes and Jacobs, 2015, p. 121)

Source: Amsterdam Rainproof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Cheonggyecheon stream in Seoul, South Korea

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Golden rules for resilient urban development

- Monitor and adapt”: resilient development
- “Do more with less” (multiple benefits)
- “Seize the opportunity” (multiple benefits)
- “Design for failure”
- “Work in partnership”
- Accelerate uptake of new technology and stimulate innovation

Source: Chris Zevenbergen, IHE

Green roofscape project: multiple large and small water storage areas; Rotterdam Resilience Strategy (2016)

Thank you!

jachnow@ihs.nl

Urban community garden

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Benefits of Nature-Based Solutions

Climate Mitigation and Adaptation

Water management

Coastal resilience

Green space management

Air quality

Urban regeneration

Participatory planning & governance

Social justice & Social cohesion

Public health & Well being

Economic opportunity & green jobs

Goals of NbS (EC)

Enhancing sustainable urbanisation through nature-based solutions can stimulate economic growth as well as improving the environment, making cities more attractive, and enhancing human well-being

Restoring degraded ecosystems using nature-based solutions can improve the resilience of ecosystems, enabling them to deliver vital ecosystem services (ES) and also to meet other societal challenges

Developing climate change adaptation and mitigation using nature-based solutions can provide more resilient responses and enhance the storage of carbon

Improving risk management and resilience using nature-based solutions can lead to greater benefits than conventional methods and offer synergies in reducing multiple risks

Source: European Commission, 2015

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