

Integrated planning and nature-based solutions for sustainable urban development

László Pintér, PhD
Professor, CEU and Senior Fellow, IISD

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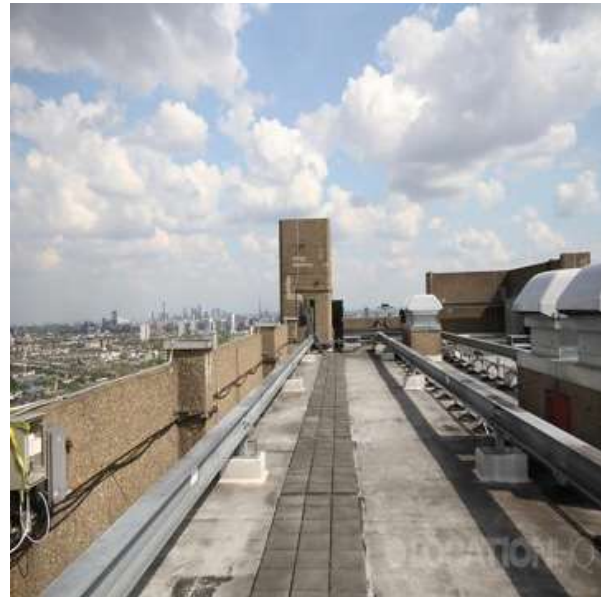


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Make Space for the New Normal

A Roof ...

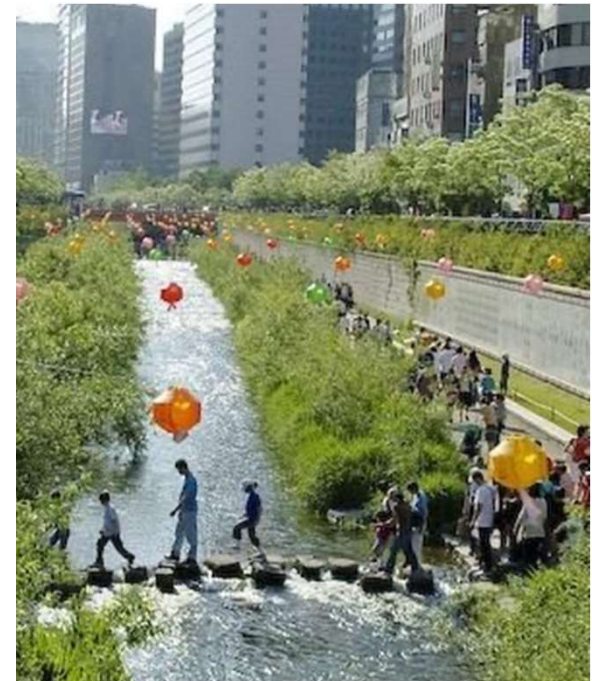


... or a storm water management,
climate adaptation, biodiverse
habitat which improves quality of life



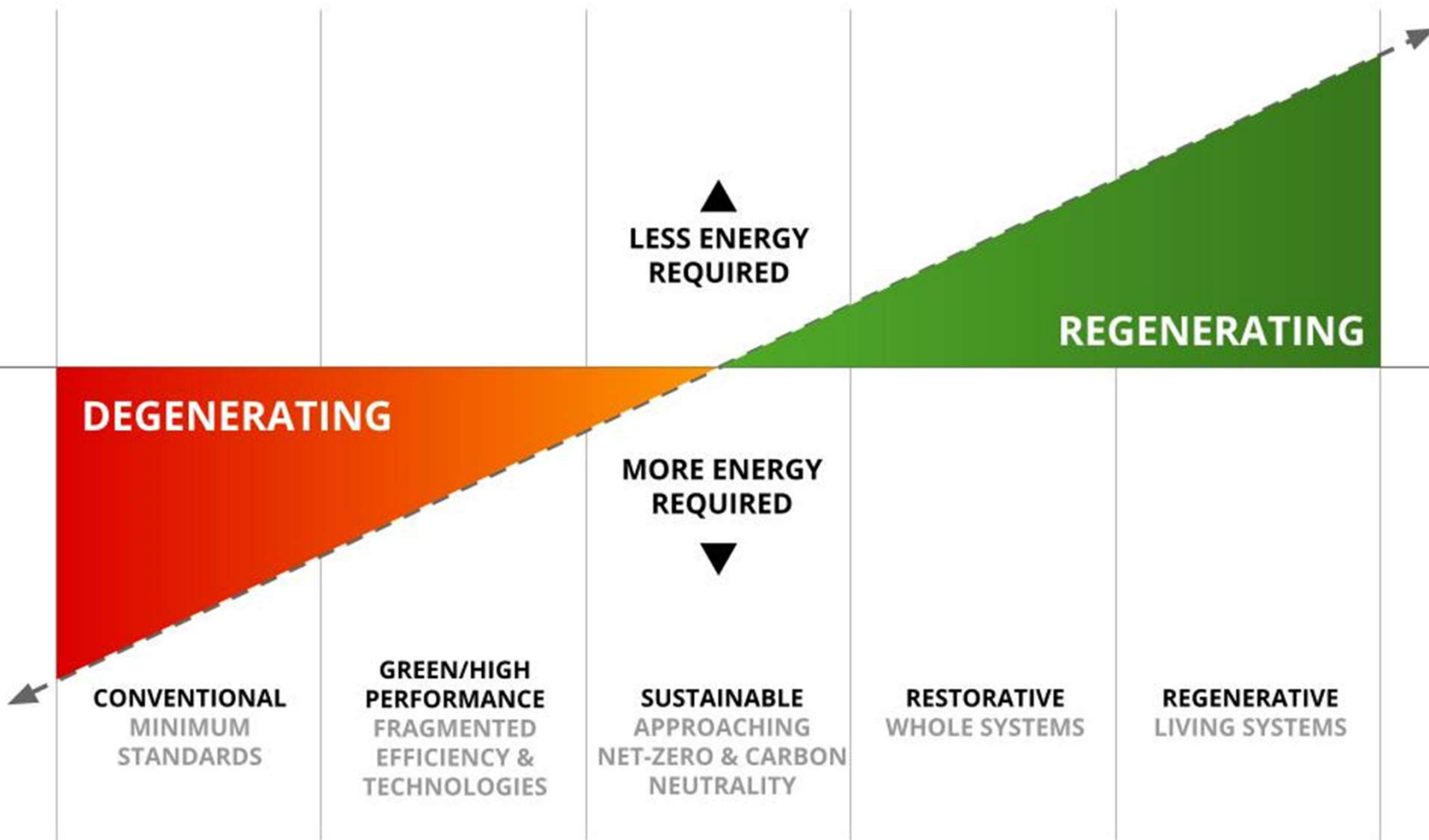
Cheonggyecheon river restoration with highway removal in Seoul.

Source: WWF





GIF source: [WATG design](#)



The Regenerative Design Framework by Bill Reed (2007). Source: Alessi 2021



URBAN NATURE ATLAS

WHERE?
WHEN?
WHY?
WHO?
HOW?
\$\$?
IMPACT?

The screenshot shows the Urban Nature Atlas website. At the top, there's a navigation bar with links: Atlas, About, Stories, Analysis, Methodology, and FAQ. On the right, there are buttons for 'Add project', 'Recommend', and 'Explorer'. The main heading is 'Welcome to the Atlas', followed by a subtext: 'A collection of more than 1000 inspiring nature-based solutions from European cities and beyond'. Below this, there are three sections: 'Select Key Challenges' with 12 icons, 'Select Nature-based Solutions' with 12 icons, and 'Global focus on Climate' with a 'Show projects' button. A search bar is located on the left. Below the search bar is an 'Advanced Filter' section with various dropdown menus: Challenges addressed, Nature-based solutions, Region, Country, City, Focus, Management set-up, Initiating organisation, Project cost, Type of financing source, Environmental impacts, Social impacts, Economic impacts, and Presence of formal monitoring system. On the right, there is a world map with orange circles indicating the number of projects in different regions: North America (7), South America (13), Europe (125), Africa (7), Asia (4), and Australia (4). The map also shows the number of projects in specific countries like France (767), Germany (92), and the UK (10).

WWW.UNA.CITY



Nature-Based Solutions (NBS) are deliberate interventions that are inspired or supported by nature.

“living solutions that bring more nature and natural features and processes into cities ... through locally adapted, resource-efficient and systemic interventions”
(European Commission, 2017).



1. Building greens (external)



2. Green areas connected to grey infrastructure



3. Parks and (semi)natural urban green areas



4. Allotments and community gardens



5. Green indoor areas



6. Blue areas

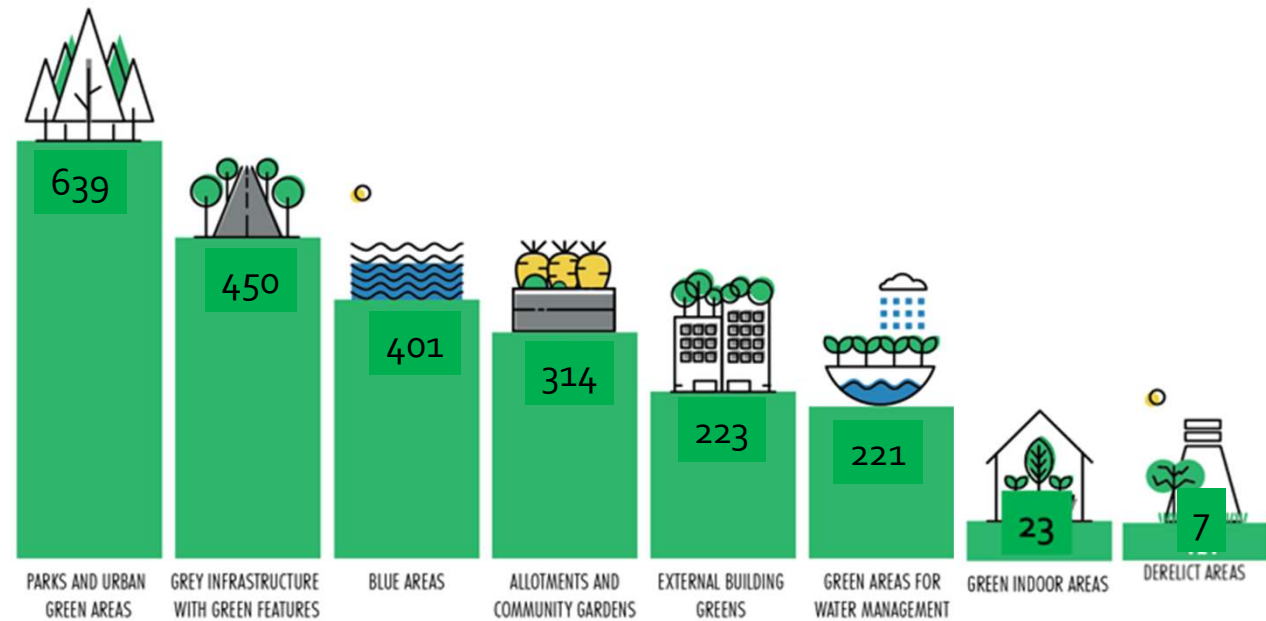


7. Green areas for water management



8. Derelict areas

NBS types in the Urban Nature Atlas





Urban Nature Atlas

Sustainability Challenges

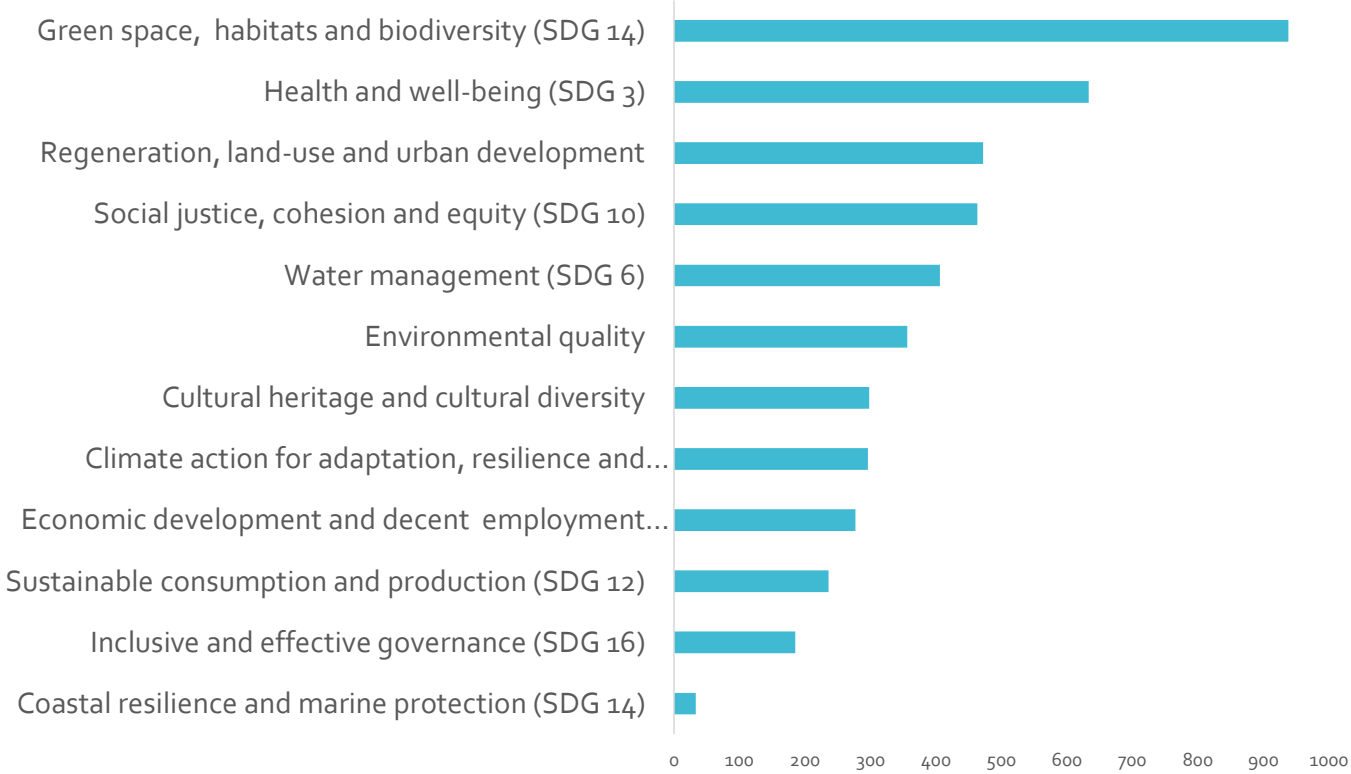


Figure 1. Sustainability challenges addressed by NBS in the Urban Nature Atlas.

Example from Colombia



Atlas About Methodology Analysis UNA Global Visibility FAQ[Add project](#)

Santalaia Building Vertical Garden

Jardin vertical edificio Santalaia

Last updated: November 2021

Santalaia is a high-end, multi-family residential building located in the heart of downtown Bogota, Colombia. Santalaia is often referred to as "the green heart of Bogota" and is seen as an icon of sustainability [1]. The 11-story building was completed in 2015 and all eleven floors are engulfed in many species of plant wildlife to encourage biodiversity. There are 115,000 native plants of 10 different species covering a total area of 3117 m² [2,3]. The plants included on the exterior of the building rely on a hydroponic system and provide a model of how to increase green zones in urban areas. A vertical garden of this size provides natural beauty in the middle of concrete Bogota while mitigating the carbon footprint of more than 700 people. An additional benefit of Santalaia's vertical garden is that the plants create a "green carpet" that serve as insulation and reduce the use of air conditioners, an increasingly valuable contribution during times of rising temperatures due to climate change [5,6].



More than 10 different plant species from compatible families
<https://blogging-technics.com/el-jardin-vertical-mas-grande-del-mundo-florace-en-el-corazon-de-bogota/>



Leaflet | © MapTiler © OpenStreetMap contributors

Bogotá, Colombia

City population: 7181000

Duration: 2013 – 2015

Scale:
Sub-microscale: Street scale (including buildings)

Project area: 3117 m²

Type of area:
Residential, Building



Example from Philippines



Last updated: February 2023

The project focuses on creating communal vegetable gardens in different barangays (small territorial and administrative districts forming the most local level of government) in Iloilo City. As part of the Plant Plant Plant Program of the Department of Agriculture, the project was initially implemented in 12 districts in the city, to provide jobs, and nutritious food and increase public awareness about food production and security amidst the Covid-19 pandemic in 2020. Since then, the project has expanded to 44 more districts, and the city has also issued a regulation to institutionalize urban gardening activities in the city. The communal gardens are expected not only to serve as a source of food but also as a source of livelihood to combat the threat of hunger and poverty. Apart from vegetable gardens, the city also looks into introducing integrated farming in which districts can also plant fruit-bearing trees and raise chickens and tilapia and also provides a series of seminars to empower district residents to produce and sell their food. Currently, around 300 hectares in the city are planted with rice and vegetables [1,2,3]



Iloilo city, Philippines

City population: 447992

Duration: 2020 – ongoing

Implementation status: Ongoing

Scale:
Meso-scale: Regional, metropolitan and urban level

Project area: 3000000 m²

Type of area:
Residential



Iloilo City institutionalizes urban agriculture

By Perla Lena

June 29, 2022, 5:04 pm

Share Share 25

ILOILO CITY – This highly urbanized city's 180 barangays and schools are expected to engage in farming after the approval of an ordinance institutionalizing urban agriculture.

"This is a landmark ordinance. This ordinance would enjoin all barangays to have area for food sources, may it be temporary or owned by the government," said Iloilo City Agriculturist Iñigo Garingalao in a press conference on Wednesday.

He said residents may engage in a container, vertical, or any type of gardening doable in the urban setting with the assistance of his office and other departments of the city government.

All schools also need to have their vegetable garden.

Garingalao added that the ordinance mandates the provision of PHP1.5 million yearly as seed capital to be used for procurement of seeds, vermicast and other inputs, and additional personnel at the Office of City Agriculturist.



URBAN FARMING. Iloilo City Agriculturist Iñigo Garingalao on Wednesday (June 29, 2022) says 180 barangays and schools are expected to embark on urban farming. An ordinance approved by the Sangguniang Panlungsod has institutionalized urban agriculture in the city. (PNA photo by Perla G. Lena)

Related Stories

- Bacolod City mayor challenges cops to do better
- 84 Iloilo City villages fire-prone due to illegal power lines
- NFA-6 to buy 1.9M bags of palay due to anticipated drought
- ARTA helps Iloilo City with automated biz permit licensing
- PNP saves over PHP300M for addressing pension issues
- Antique implements 24/7 checkpoint vs. African swine fever
- For the nth time, hog raisers urged to stop 'swill feeding'



NBS business models



Risk reduction



Local stewardship



Green densification



Green health

➤ Upfront investments into urban nature-based solutions are made to lower future costs from extreme weather events

➤ NBS are valued by citizens and businesses who are willing to protect and support nature in their neighborhood based on the direct value and sense of identity and meaning that they derive from it

➤ Integrating NBS into urban real estate development, with costs embedded as part of larger 'sustainable urban living' business case

➤ The therapeutic, health and wellbeing value of urban nature-based solutions is recognized and used as a driver to finance urban nature-based solutions



NBS business models



Urban offsetting

- A 'no net loss' approach incentivizes or requires offset investments into urban nature-based solutions that are lost because of real estate and infrastructure development within the city



Vacant space

- The government steps back and provides space for local initiatives and (social) entrepreneurship in (sometimes temporarily) unused urban public space



Education

- Urban nature-based solutions are set up and managed to support environmental education and allow young, urban citizens to engage with food and nature



Green heritage

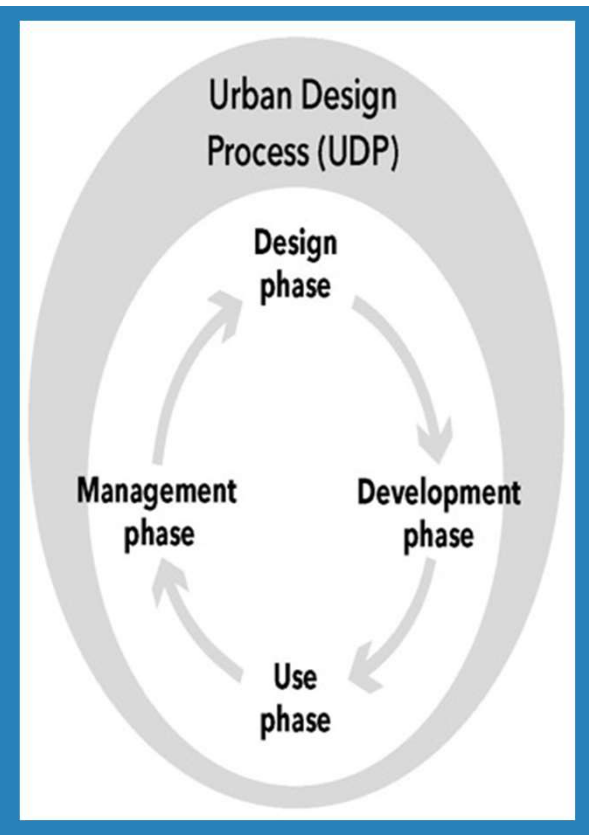
- Builds on cultural values and a sense of identity to sustain and develop urban nature-based solutions, can lead to different types of value creation, ranging from tourism and education to cultural healing





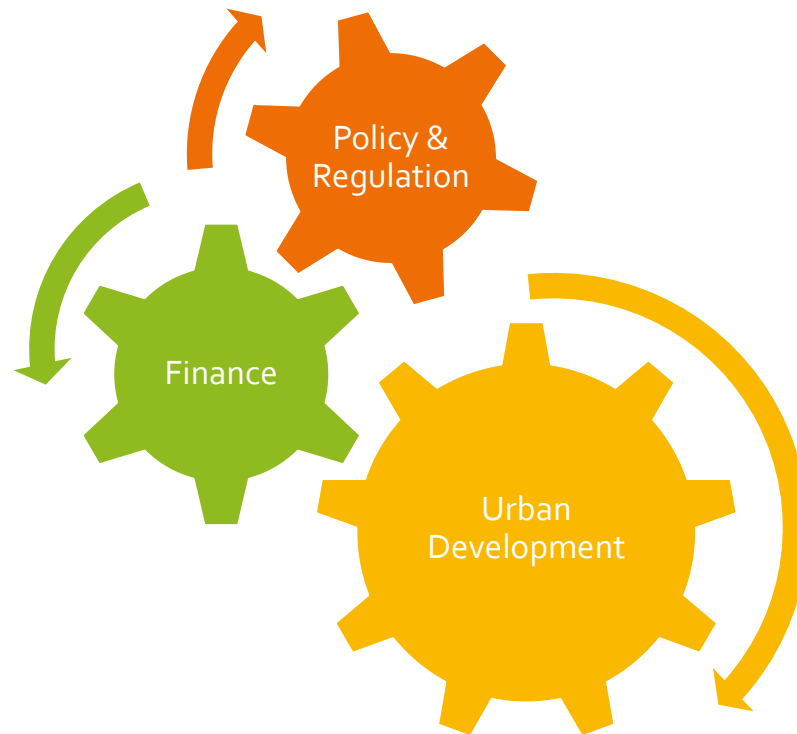
Conditions for realizing the regenerative potentials of place

- All phases affect the ecological and social conditions of regeneration.
 - Importance of more-than-human approach to urban design
 - Community involvement & sustainability learning
- Flexible, reflective process
 - Community-centered, open, multi-stakeholder
 - Adaptive and anticipating to the continuous, dynamic development needs (growth of the more-than-human & mechanisms of community-driven design)
- Cohesion and integrity of the NBS design vision
- Learning between the different design phases



The Urban Design Process.
Source: Carmona 2014, Boros 2022

The conditions for shifting gears



- ✕ Urban planning and development has key role in shifting gears for nature in cities
- ✕ New regulation that supports using nature based solutions
- ✕ Potential to work with partners in urban development & finance to recognise value of nature
- ✕ Entrench nature as essential part of infrastructure in urban culture and politics





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