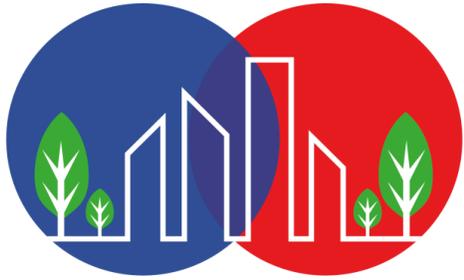


# Urban forestry as green infrastructure - a nature based solution for Sino-European cities.



**CLEARINGHOUSE**  
中欧城市森林应对方案

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# About

## Nature-based solutions that contribute to sustainable urban development

Coordinated by the European Forest Institute (EFI), the CLEARING HOUSE project brings together 26 partners from across the spectrum, including prestigious universities, national research institutes, international and national non-profits, SMEs, and botanical gardens.

Over the next four years, the partners will provide evidence and create tools that encourage rehabilitating, reconnecting and restoring urban ecosystems.

Together with 10 cities and urban regions, the project partners will develop an online application, a global benchmark tool, and guidelines that can aid in the design, governance and management of urban forests.

## CLEARING HOUSE

### Project Partners

- 1 European Forest Institute (EFI) (Coordinator)
- 2 Research Institute of Forestry - Chinese Academy of Forestry (CAF-RIF)
- 3 Fundacja Sendzimira (TSF)
- 4 Vrije Universiteit Brussel (VUB)
- 5 Humboldt-Universität zu Berlin (HUB)
- 6 Centro de Investigación Ecológica y Aplicaciones Forestales (CREAF)
- 7 Uniwersytet Łódzki (UniŁódzki)
- 8 LGI Consulting SARL (LGI)
- 9 Università degli Studi di Bari Aldo Moro (UNIBA)
- 10 Luonnonvarakeskus (LUKE)
- 11 Universität fuer Bodenkultur Wien (BOKU)
- 12 Hrvatski Sumarski Institut (CFRI)
- 13 Beijing Forestry University (BFU)
- 14 Fujian Agriculture and Forestry University (FAFU)
- 15 Guangzhou Institute of Forestry and Landscape Architecture (GZIFLA)
- 16 Zhejiang University (ZJU)
- 17 Shenzhen Fairy Lake Botanical Garden (SZFLBG)
- 18 Institut Bruxellois pour la Gestion de l'Environnement-Brussels Instituut voor Milieubeheer (IBGE)
- 19 Urząd Miasta Krakowa (UMKrakowa)
- 20 Area Metropolitana de Barcelona (AMB)
- 21 BOS+ Vlaanderen vzw (BOS+)
- 22 Vlaams-Brabant (Vlaams-Brabant)
- 23 The University of Hong Kong (HKU)
- 24 Stadt Gelsenkirchen (Gelsenkirchen)
- 25 Association mondiale des grandes métropoles, Metropolis (Metropolis)
- 26 International Union for Conservation of Nature (IUCN)

### Case Study Cities/City Regions

- beneficiary
- non-beneficiary
- 18 Brussels\*
- 19 Krakow\*
- 20 Barcelona\*
- 24 GelsenKirchen
- 27 Leipzig-Halle
- 28 Beijing
- 29 Hong Kong\*-Ghuangzhou-Shenzhen
- 30 Hangzhou
- 31 HuaiBei
- 32 Xiamen

\*Covenant of Mayors signatory



# Urban forestry

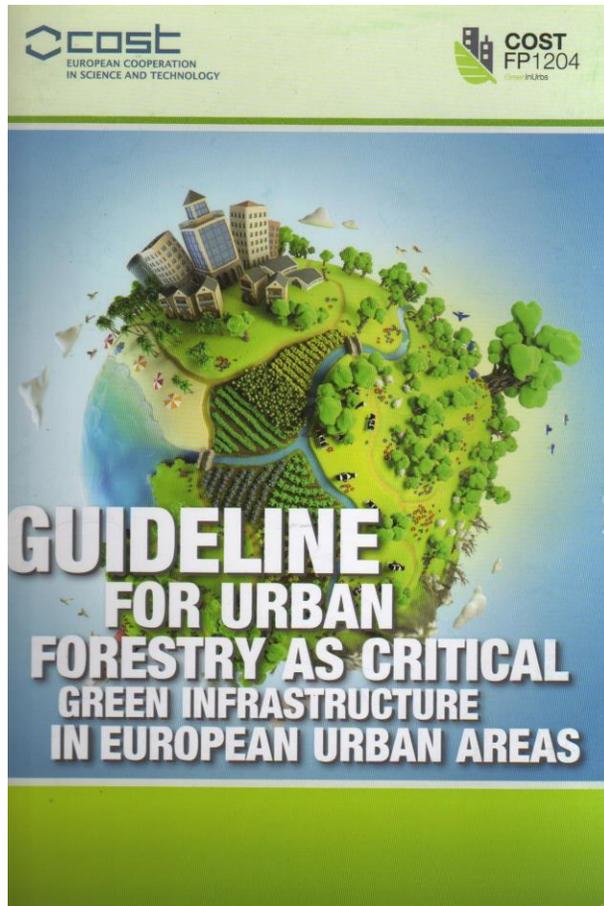
- **Evolving concept** that initially focused on aesthetics and recreation but is now much more.
- **Closely aligned** to urban green infrastructure and frequently is the main GI typology for many cities.
- Trees **set the scene** for many nature based interventions.



Photo: Clive Davies, Bonn Germany.



# Urban forestry as green infrastructure 1

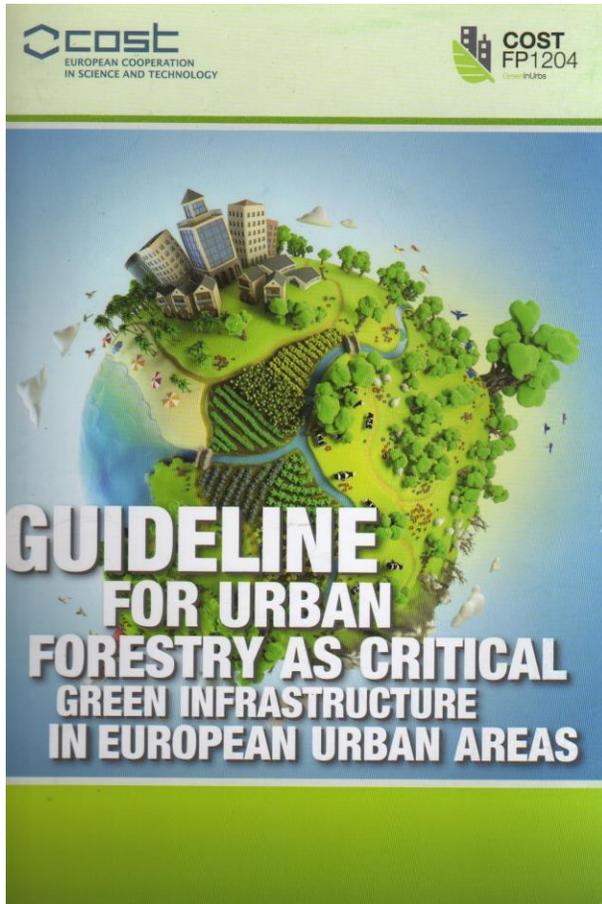


## A distinctive contribution:

- Strong visual and landscape amenity
- Shade and urban cooling
- Storing and sequestering carbon
- Attenuates noise and glare
- Filters air through normal biotic processes
- Water management slows run-off
- Nutrient cycling and urban soil protection



# Urban forestry as green infrastructure 2



## A distinctive contribution:

- Source of food (people and wildlife)
- Increases urban biodiversity and creates ecosystem niches and ecotones
- Key setting for exploratory play
- Health benefits of green views and de-stressing
- Can be strongly connective tissue in UGI spatial networks
- Multi-purpose



## Recent research headlines

Urban Forests are pathfinders for smart cities – open data management, data logging and big data analytics (Canada)

Trees are efficient scavengers of PM10s (Korea)

Children with SENs learn better in green environments (Slovenia, Belgium, UK)

Depending on the leaf area index trees over asphalt can be 24C cooler. (Germany)

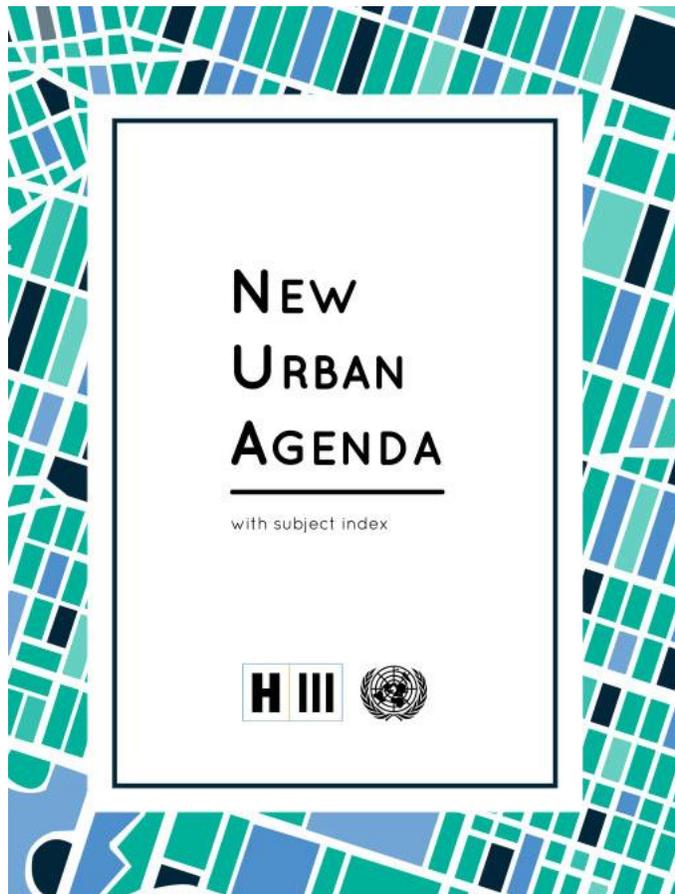
Urban woodlands often include only one species of tree – concern about resilience in face of climate change (Lithuania)

Tree cover measurements must include losses and gains in residential areas in six years the net loss was -10% (Poland)

Mixed forests are nearly as effective as wetlands at ecosystem water flow regulation (Slovenia)



# The new urban agenda



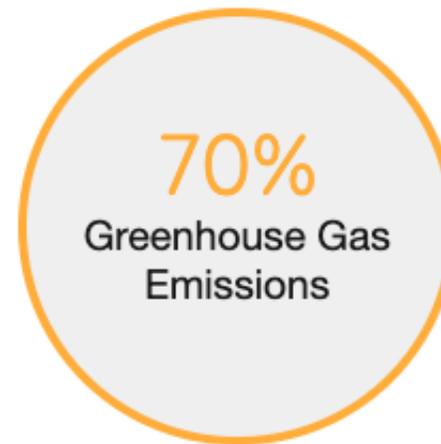
- The New Urban Agenda was adopted at the United Nations Conference on Housing and Sustainable Urban Development in 2016.
- It represents a shared vision for a better and more sustainable future.
- The core belief is that a **well-planned and well-managed, urbanization can be a powerful tool for sustainable development** for both developing and developed countries.
- Implementation involves **Urban Planning and Design. Establishing the adequate provision of common goods, including streets and open spaces**, together with an efficient pattern of buildable plots.



# Global context

## THE GLOBAL CONTEXT

Cities today occupy approximately **only 2%** of the total land, however:



# Specific Sino European Context

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## Europe

Urban growth in the west and urban decline in the east

Democratic deficits including an unequal distribution of wealth – wealthiest neighbourhoods are also the greenest

Climate impacts and resilience – emergence of an emergency

Housing crisis

Demographics and growth through immigration – Europe's changing face.

Decline of biodiversity and deterioration of ecosystem services

## China

Rapid growth might be followed by rapid decline

Burgeoning middle class which is largely urban leading to greater expectations

Poor urban design codes

Pollution of air and water makes urban living challenging

Infrastructure is overwhelmed

Lack of access to greenspace for recreation and well-being

Inward migration – cities are still growing but it is slowing down



# Urban Forest response

Trees alone are not enough of a response.

We need trees to be the pathways for the cost effective restoration of degraded urban environments, and the enhancement of ecological connectivity.

Why? - in order to improve human wellbeing and social inclusion.

The new focus for urban forestry should be on tree-based green infrastructure, including urban forests and forested parks and trees in public and private spaces especially in areas that lack access to other types of green public spaces.

Tree-based green infrastructure is the basis for “urban forest nature based solutions”

In it can address SDG11

**TARGET 11-3**



**INCLUSIVE AND SUSTAINABLE URBANIZATION**

**TARGET 11-7**

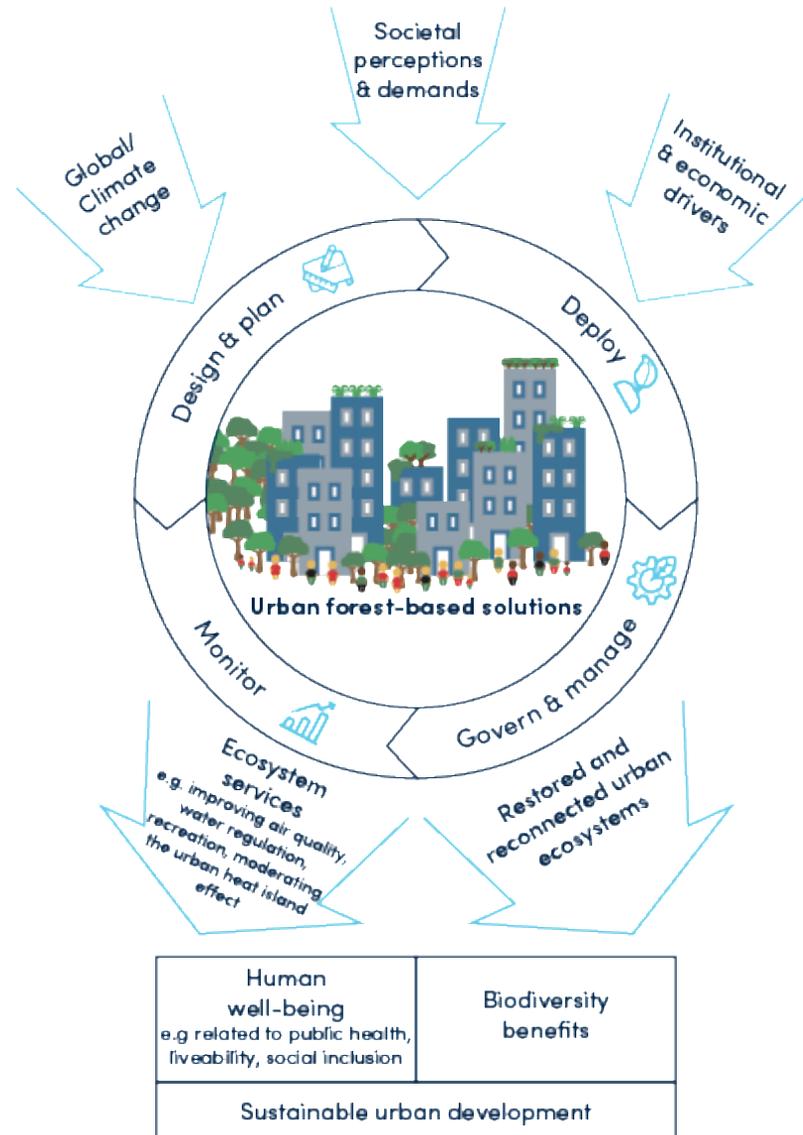


**PROVIDE ACCESS TO SAFE AND INCLUSIVE GREEN AND PUBLIC SPACES**

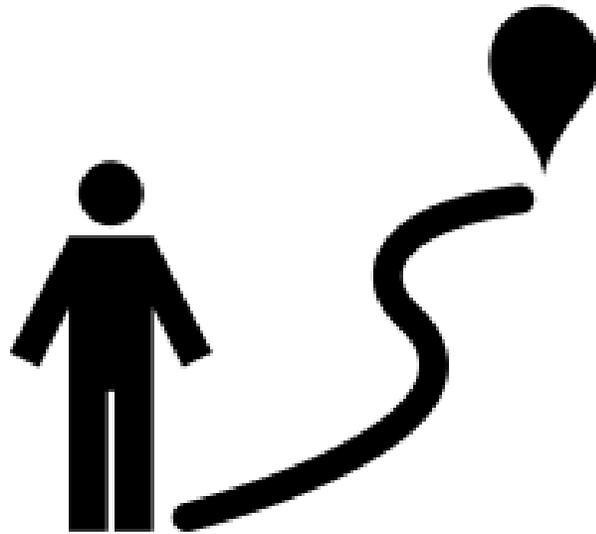
Photo: Open Development Mekong.net



# The UF-NBS approach



## Areas that require new or further advancement of (social) science in urban forestry



1. Pathways that enhance sustainable provision of ecosystems services that are locally adaptable.
2. Pathways that improve governance, management and monitoring.
3. Pathways that improve research and professional capabilities through intersectional learning
4. Pathways that make UF NBS attractive as a cost effective solution
5. Pathways that raise awareness of UF NBS in sustainable development capturing the essence of the climate emergency.



# Making urban forestry a factor with planning and policy connections

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Green thread in urban planning

An interdisciplinary approach

New forms of local governance

Not free but neither high cost

Sustainable management must be long term



# European Examples



Heatwaves in northern capitals  
– May in Helsinki the worlds  
most northerly capital city.

*UF NBS solution = trees for  
shade*



# European Examples



Loss of biodiversity in Germany.

*UF NBS solution = creating  
microhabitats for the food chain*



# European Examples



Space for people in Italy.

*UF NBS solution = more accessible greenspaces for active recreation, well-wooded for summer shade and all-day use.*



# European Examples



Photo: BBC

Forest fires near Torino, Italy.

*UF NBS solution = managing  
fire-load in peri-urban forests.*



# European Examples



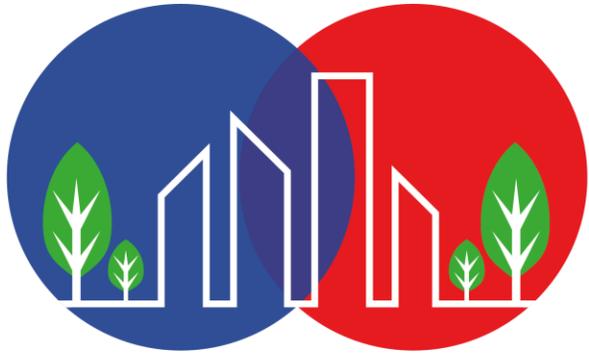
Photo: EEA

Flood protection Leipzig,  
Germany.

*UF NBS solution = recreating  
flood plain forests upstream and  
through cities.*



# Thank you



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