EUROPEAN FOREST INSTITUTE

Transition towards Circular Bioeconomy – Integrative Planning Concepts in City and Landscape Planning

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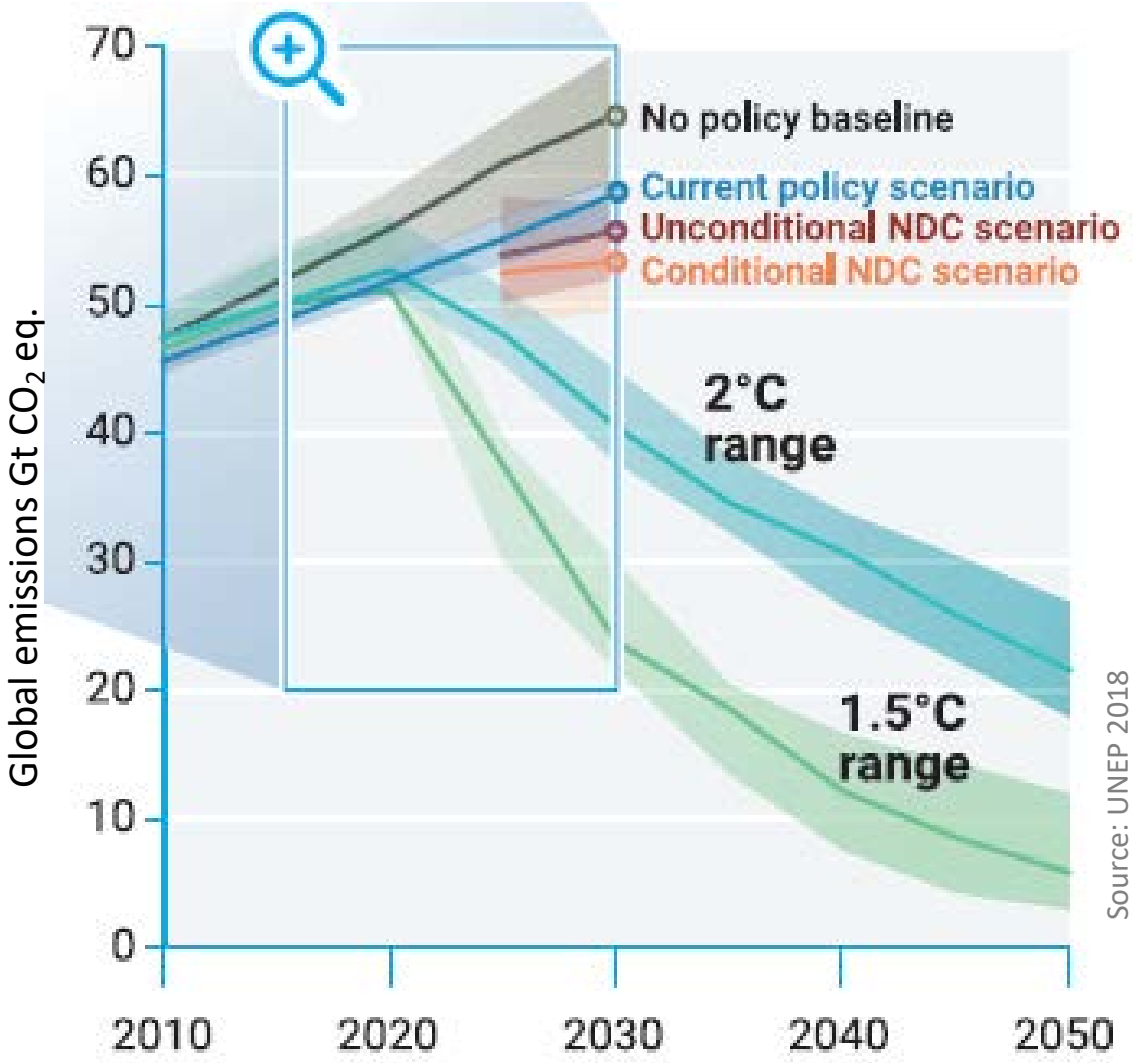
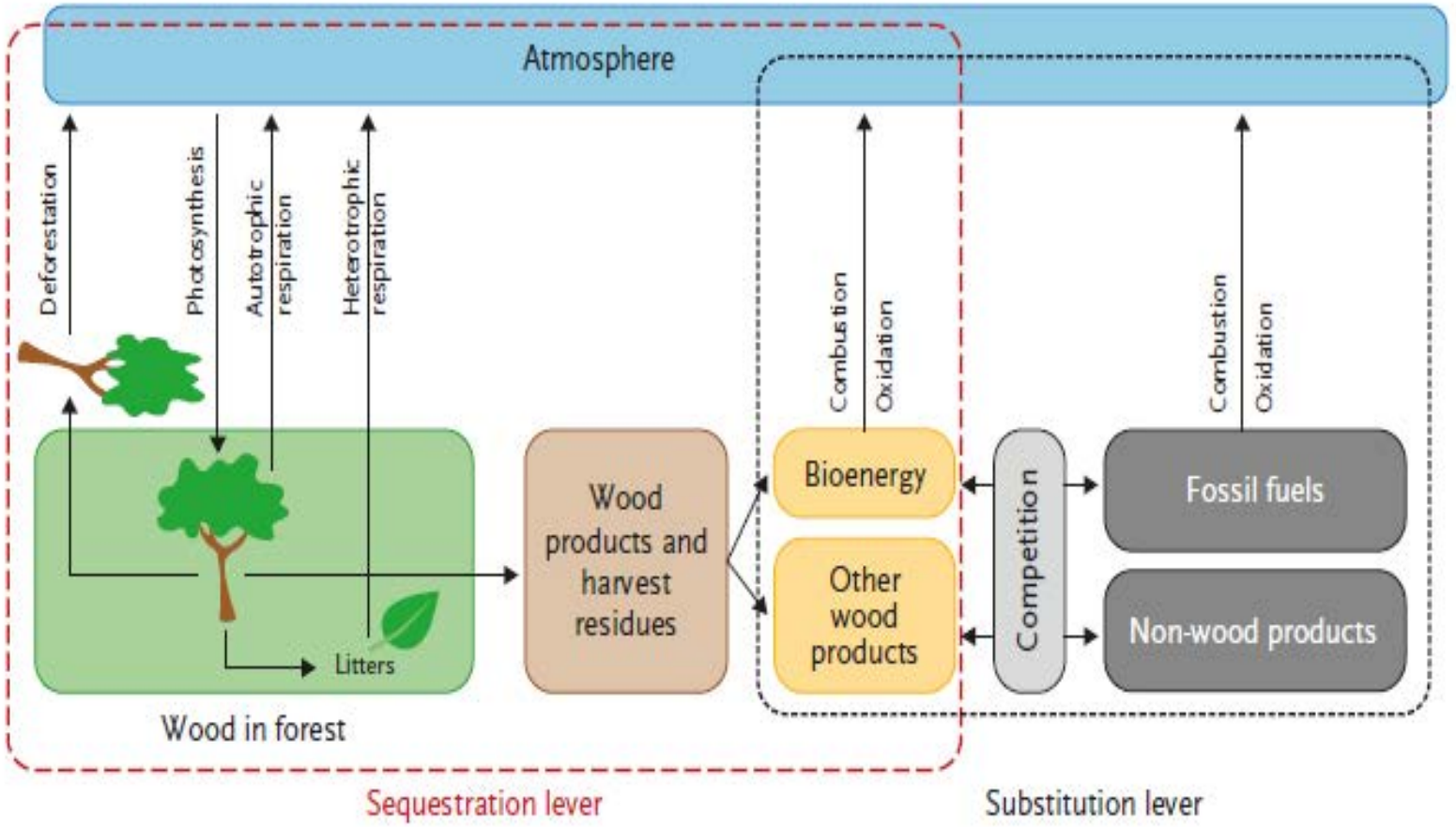
Climate challenge

- Current plans **not sufficient**
- **Major scale** actions are needed

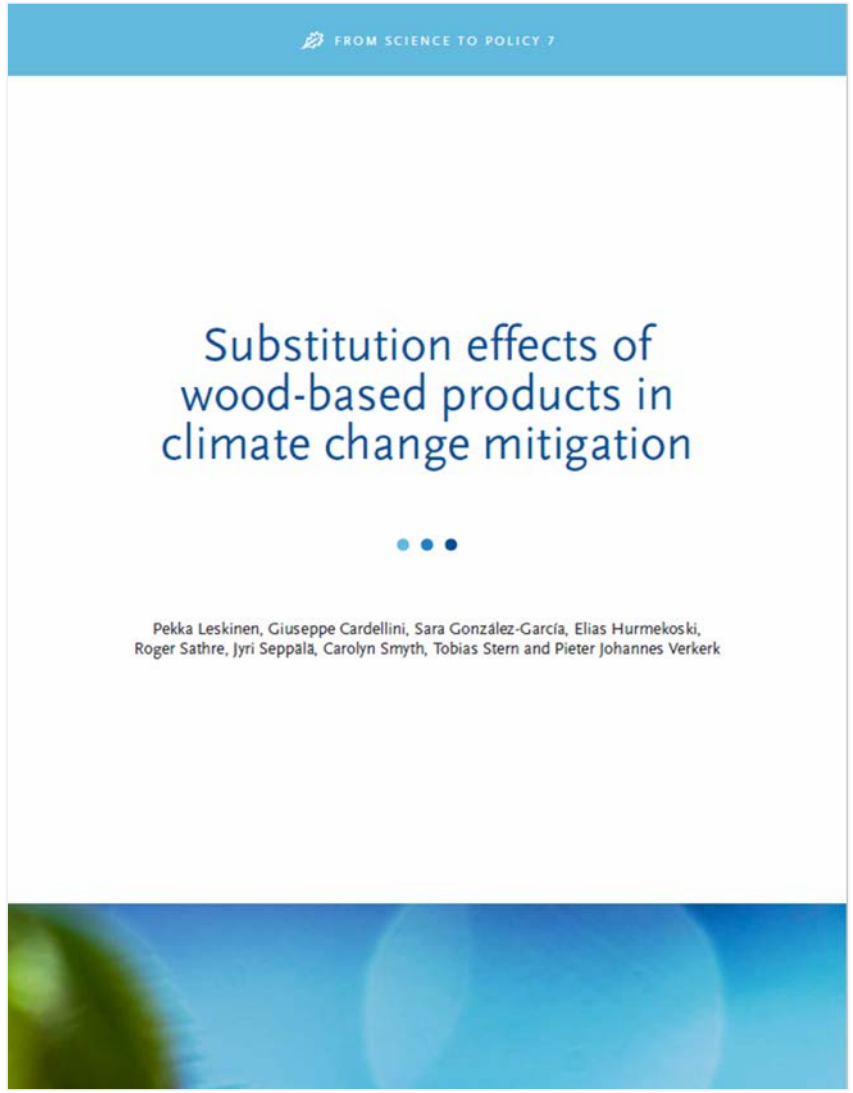


Carbon stocks and flows (Nabuurs et al.)



Why this study?

- Many roles: forest carbon sinks, wood products as carbon storage, **substituting greenhouse gas intensive materials**
- Contribution of wood products to mitigation **not well understood**
- Lack of up-to-date knowledge
- Need to understand impacts to develop **optimal strategies for forests/forest sector to contribute to climate change mitigation**

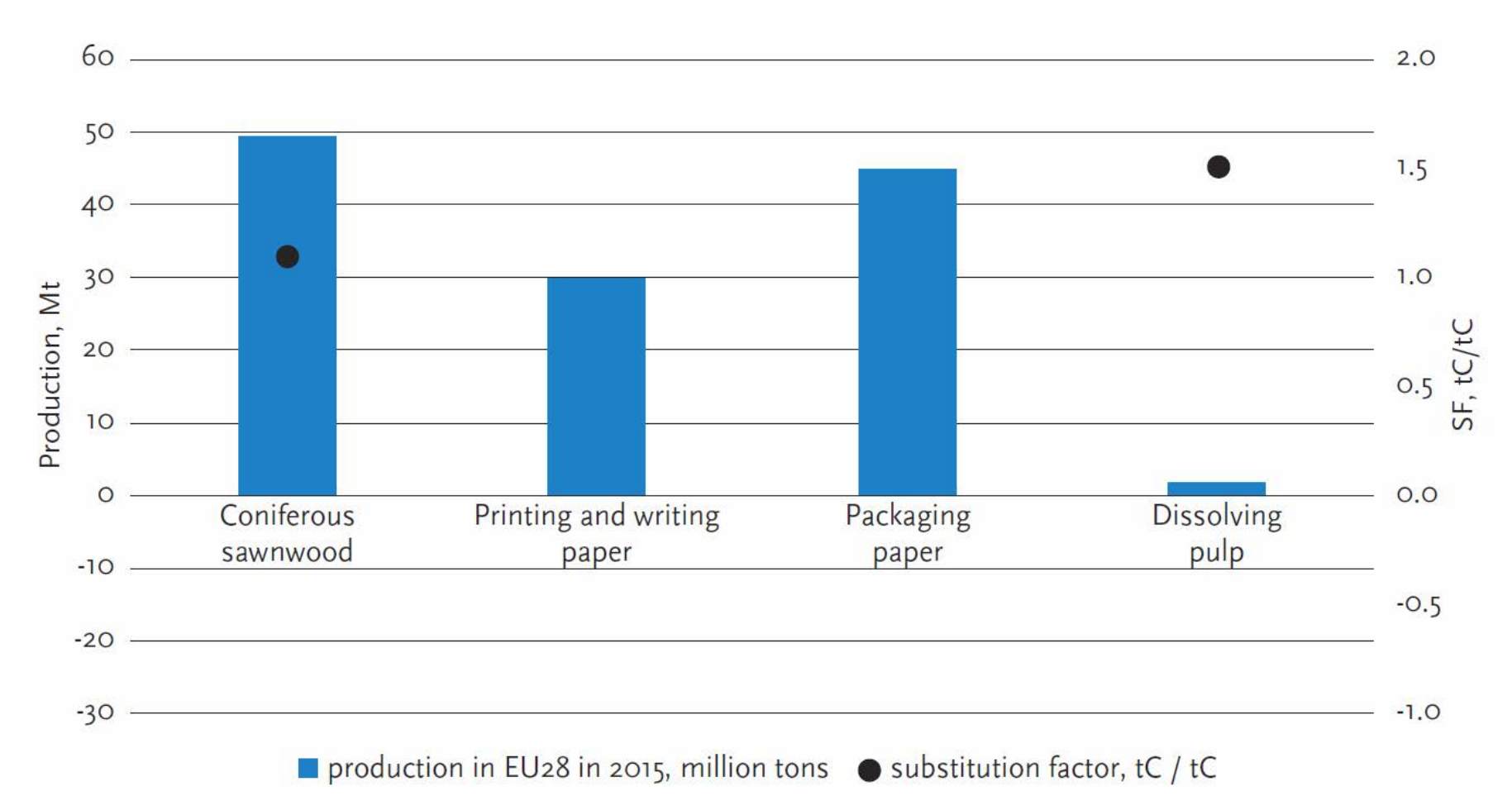


Average substitution effects

Product categories	Average substitution effect kg C / kg C wood product	Average substitution effect kg CO2 eq. / kg wood product
Structural construction	1.3	2.4
Non-structural construction	1.6	2.9
Textiles	2.8	5.1
Other product categories	1 – 1.5	1.8 – 2.7
Average across all product categories	1.2	**2.2***

*** 95% of the substitution factors between [-1.3, 9.3]**

From products to market level



Key messages

1. Use of wood and wood-based products is associated with **lower fossil and process-based emissions** when compared to non-wood products

2. Average substitution effect of **1.2 kg C / kg C**

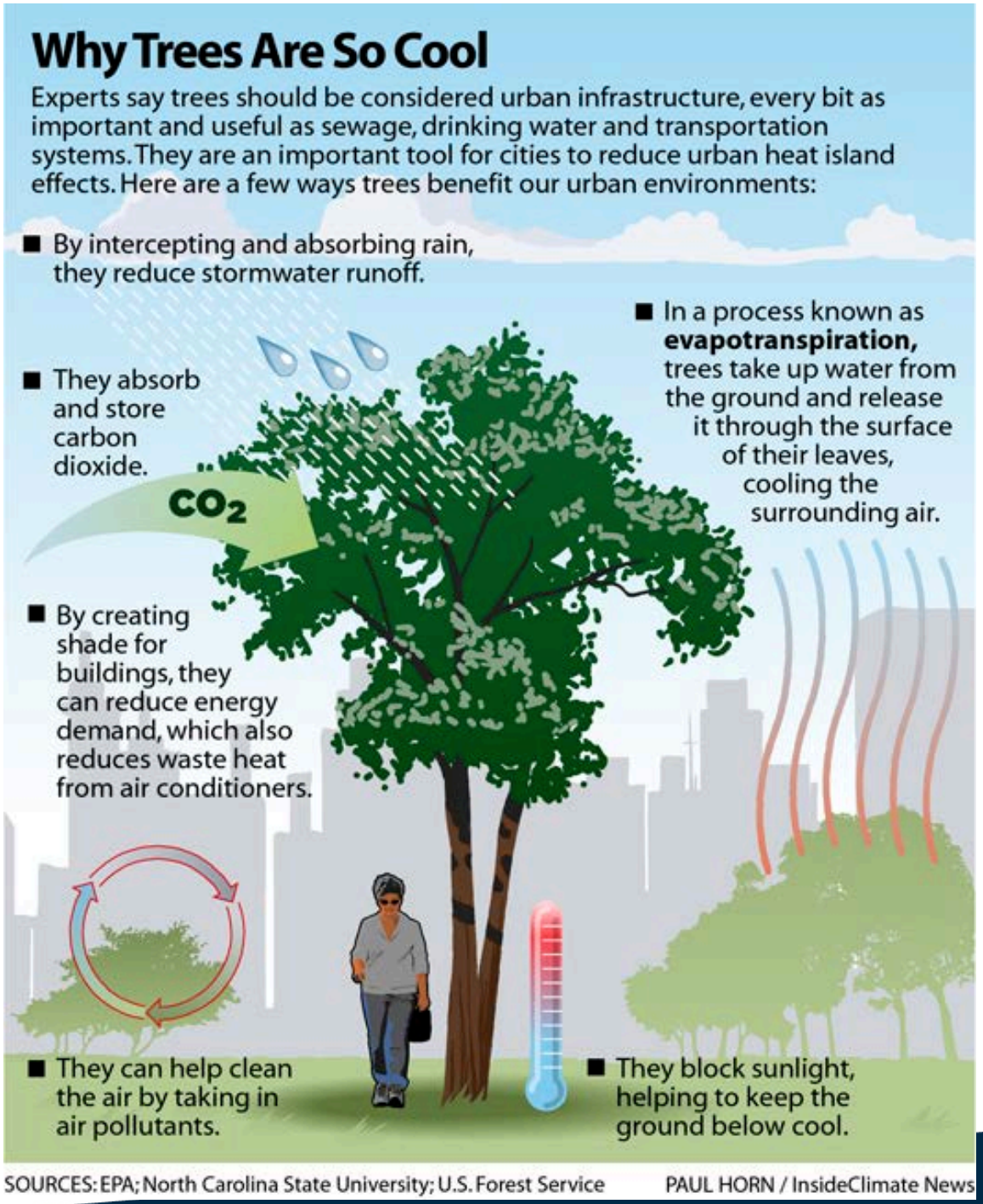
3. Substitution factor is not sufficient to guide policy making – needs a **holistic approach**

shock - Fotolia

Key messages

4. **Resource-efficiency and minimizing material waste** should be simultaneous policy target with climate mitigation
5. **Lack of knowledge on climate impacts of emerging forest products** – textiles, packaging, chemicals
6. Important to **consider all sustainable development goals** to find synergies and minimize trade offs

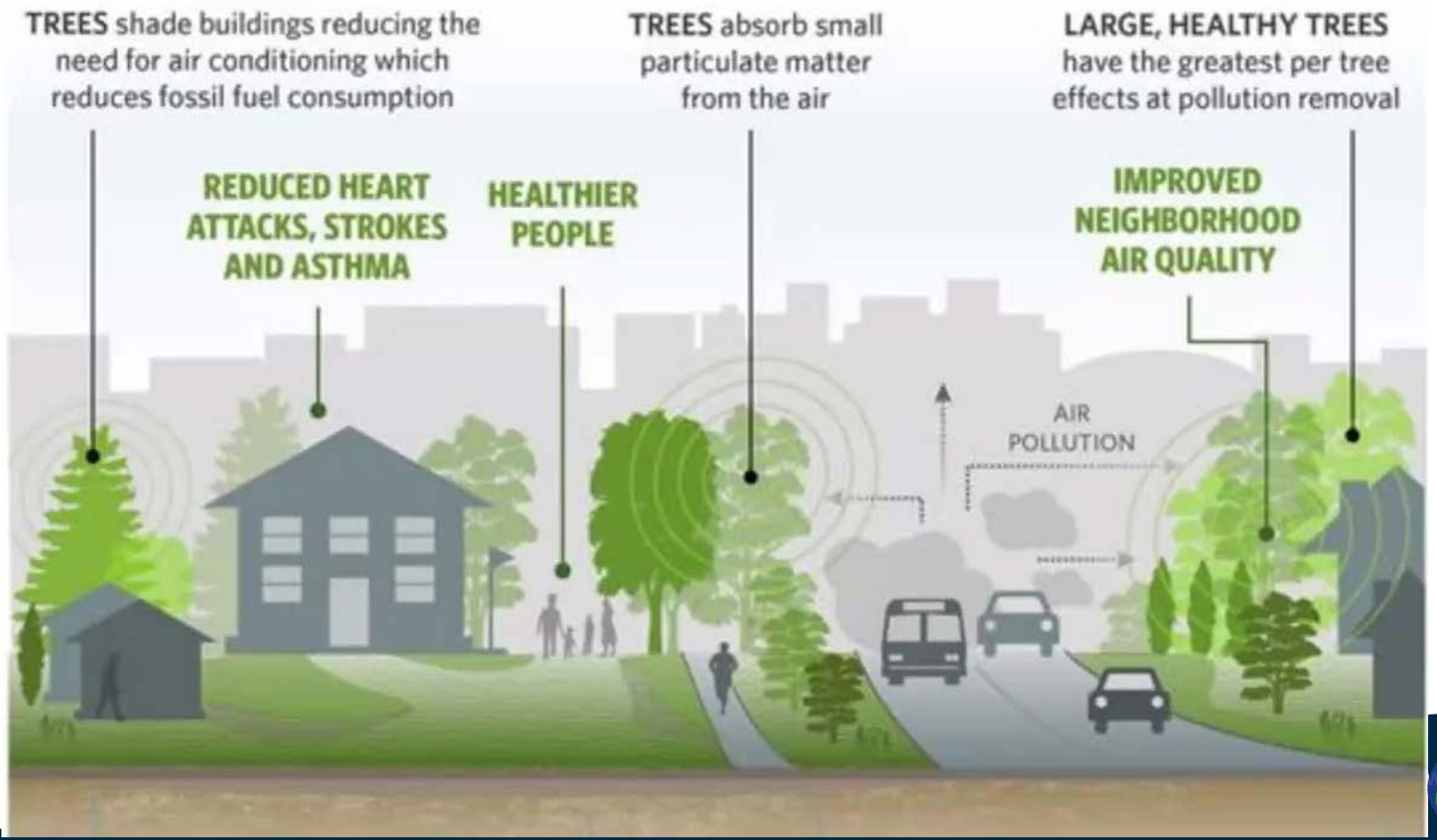
Urban forests as nature-based solutions for urban adaptation and mitigating weather extremes



(credit, NIFoS, 2020, modified from Liveley et al. 2016)

https://insideclimatenews.org/content/infographic-why-trees-are-so-cool

Co-benefits by urban trees



Source: Boeri (2020). Innovative design and practices for the integration of trees and plants in the urban fabric. Presentation at *Towards the 3rd Asia-pacific Urban Forestry Meeting*, 20 October 2020.

Integrative planning in city and landscape planning

The integration of landscape planning and city planning lies in:

- Shared goals in respect of sustainable development
- Trans-disciplinary approach which brings professions together to solve common problems which deals with:
    - Public landscape (goods)
    - Multiple land uses & functions
    - Projects that occur over a long period of time
    - With impacts inter-generational and cover
    - Multiple ownerships, sectors and interests (greening department, building permit dep., roads dep. ...)

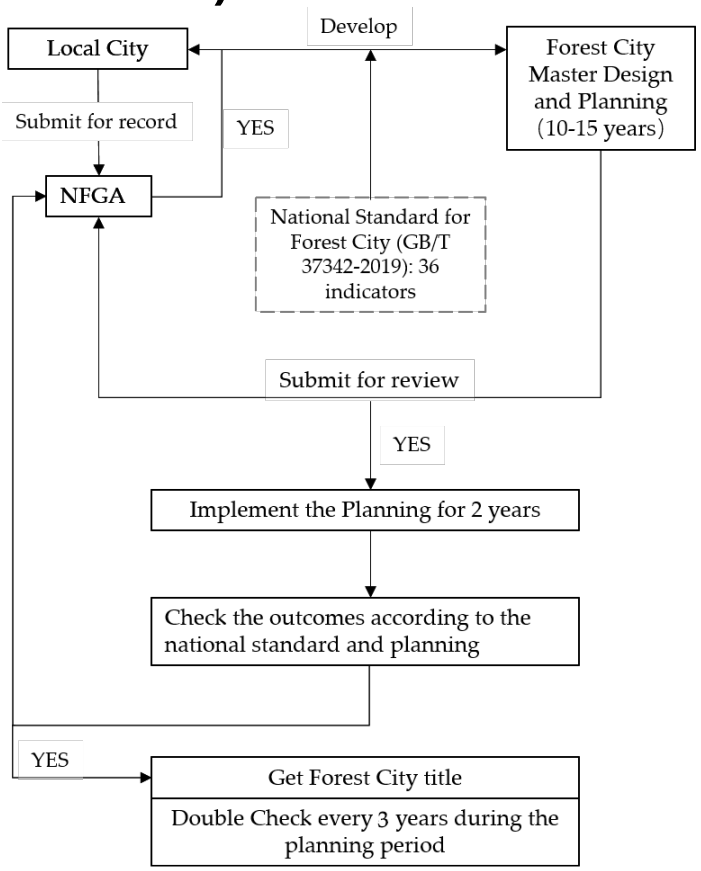
Source: Boeri (2020). Innovative design and practices for the integration of trees and plants in the urban fabric. Presentation at *Towards the 3rd Asia-pacific Urban Forestry Meeting*, 20 October 2020

Integrative planning concepts in city and landscape planning

E.g. creating multiple benefits for new residents but also for existing communities and provides an affordable, long term and rich landscape which maximises ecosystem services which places nature and people on an equal footing. Such interventions:

- Promote the use of wood and wood-based material as substitute for concrete and steel
- Provide new tree planting that is more than what might have been removed
- Includes green infrastructure corridors that offer sustainable transport routes and simultaneously health and wellbeing by design

National Forest City Programme in China (194 Cities in 2019)



CLEARING HOUSE Project

CLEARINGHOUSE
中欧城市森林应对方案

Collaborative **Lea**rning in **R**esearch, **In**formation-sharing and **G**overnance on **Ho**w **U**rban forests as nature-based solutions support **S**ino-**E**uropean urban futures.

- **Coordinators**: European Forest Institute (EFI) & Chinese Academy of Forestry – Research Institute for Forestry (CAF-RIF)

48 MONTHS

26 PARTNERS

11 COUNTRIES

10 CITIES & URBAN REGIONS

5.5 MIO EUR BUDGET

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Key messages

1. Wood substitution factor is not sufficient to guide policy making – needs a **holistic approach**
2. **Integrating forest-based solutions in sustainable city planning** includes looking at
   - Conserving and increasing tree cover at city, street and plot level
   - Integrating use of wood-based building materials in building directives