Barcham Seminar Series No 74

The Future of Urban Forestry in the Urban 21st Century

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**Professor of Landscape Architecture + Urban Forestry**

Leeds Beckett University

International Committee European Forum on Urban Forestry

The 21ˢᵗ Century = the Urban Century…

- It is forecast that 2.4 billion people will be urban areas by 2050…

- Some 1.2 million km² will be covered by the new urban by 2030 – equivalent to the area currently covered by the country of South Africa.

- This will affect many aspects of our human society and profoundly shape our civilisation…

- Aristotle famously referred to humans as 'a social animal', by which he meant that our unique skill and love for interacting with one another is part of the essence of our species. In cities, it could be argued that we are creating the perfect space for social interaction. **Cities are human…**

- **But are they becoming inhumane?**

- The concentration of people tends to lead to a concentration of environmental and health problems, including local resource use, waste generation and degraded local environments. What can be done about it? Can urban forestry help?
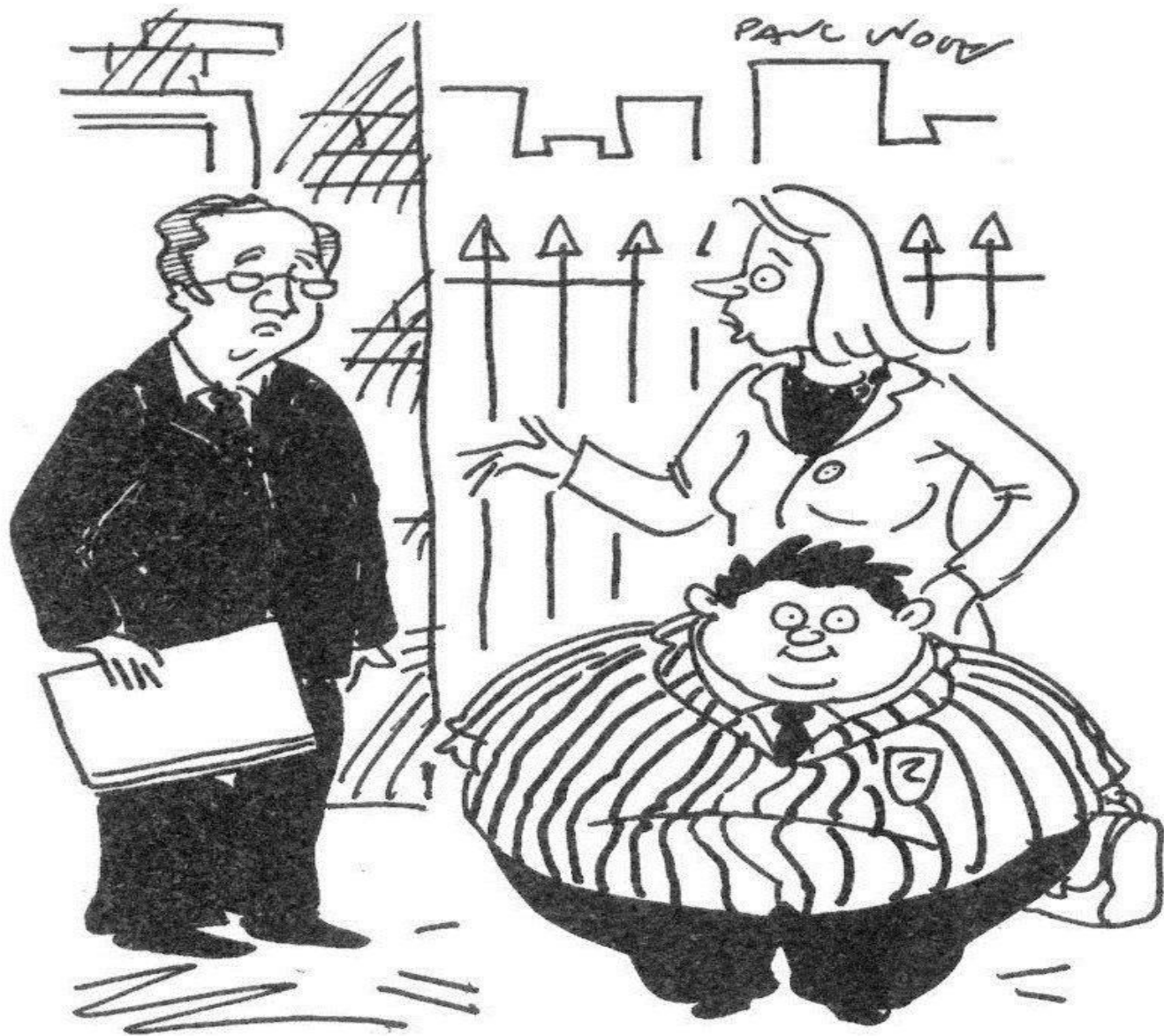
"OF COURSE I HAVE TO DRIVE HIM TO SCHOOL IN A PEOPLE CARRIER, HE WON'T FIT INTO ANYTHING ELSE"

- **Obesity isn't just aesthetic. It can cause :**

  - Respiratory infections
  - Ischaemic heart disease
  - Cerebrovascular disease
  - Unipolar depressive disorders
  - Attention Deficit Hyperactivity Disorder (ADHD)

  Recent research suggests that increasing the canopy cover of a neighbourhood by 10% can reduce obesity in that neighbourhood by 18%...

What are we doing to our kids?

- 1700 prescriptions per day for under 18 year old depression;

- Short-sightedness up 15% in young children

- Children's 'roaming range' shrunk by 90% in the past 30 years

- Time spent outside down 50% in one generation – prisoners in the UK get more exercise outside

- Self-harming up 70% in two years in the UK [2014 data]

What is urbanism doing to the next generation?

- 27% of children aged between 8 and 15 have never played outside their own gardens…

- 10% of children in the UK have been diagnosed with mental health disorders – the worst in Europe…

- 1 in 12 adolescents self-harm…

- 30% are over weight or obese…

- EVERY YEAR OUR CHILDREN IN THE UK ARE GETTING MORE DISORIENTATED AND FATTER…
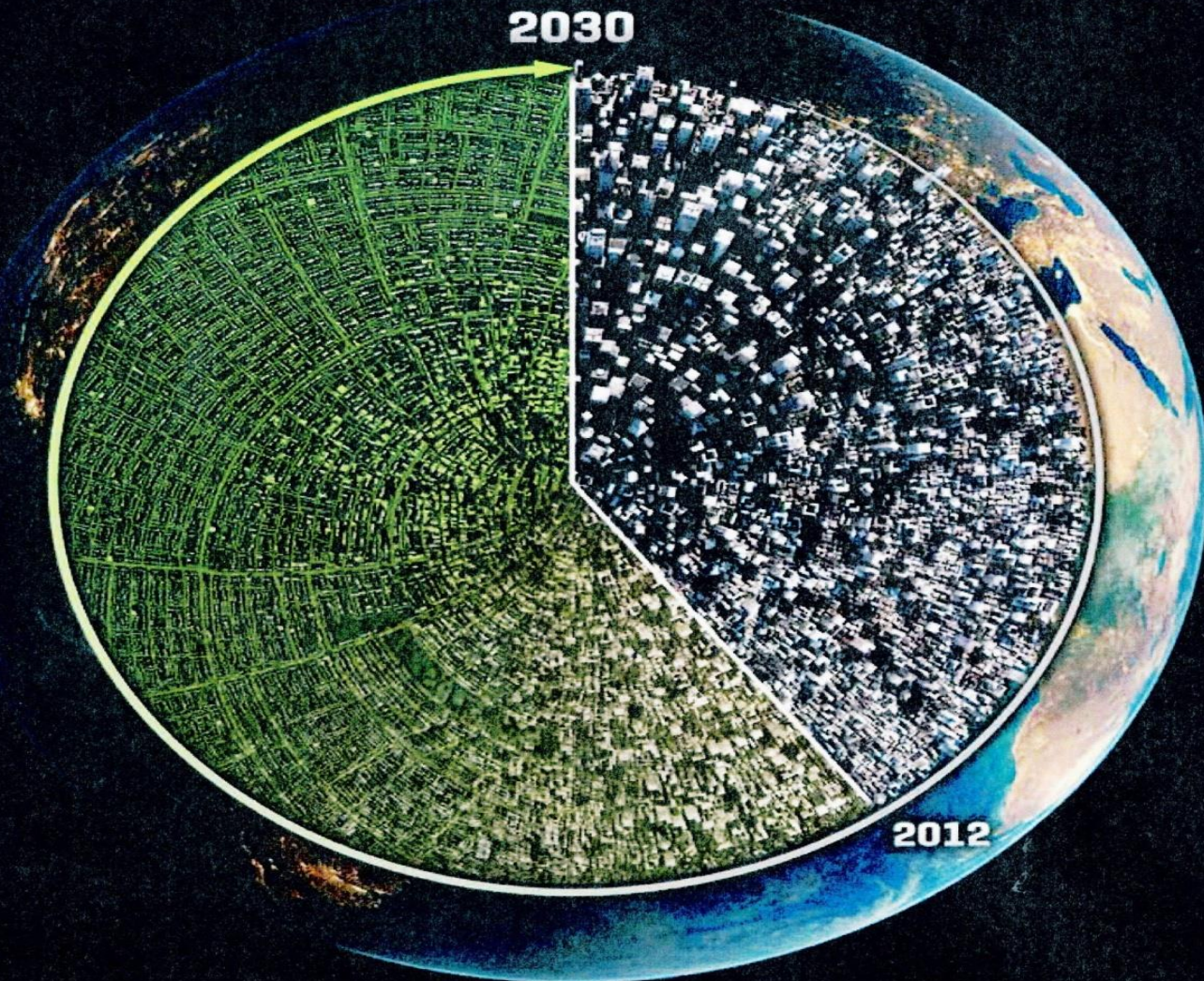
Urban expansion in the UK…

- 1970 – 2005 : 5 million plus
  (35 years)

- 2005 – 2016 : 5 million plus
  (11 years)

- The UK population will have grown by 8 million by 2035 – a 15% increase …

- As a result, many urban areas will increasingly be ethno-culturally diverse and be multicultural in character. Can urban forestry influence the health, well-being and quality of place for people living in the urbs? **YES…**

Urban Futures…

- Why is every movie about the future so pessimistic, full of aggression and violence?

- Does Urban Forestry have the potential to help us with believing in viable urban futures , as it is **an optimistic scenario that is always looking forward to the future, and strives for our urban futures to be happy, healthy, creative and successful…**

- The answer is **YES**, but it seems that urban Forestry has a low political status, especially in the UK. This is partially because the trans-disciplinary field of Urban Forestry operates in a complex context, with rapidly changing conditions, drivers and 'storylines'.

- It competes with many issues for the attention of decision makers and local communities, but…

Health / Financial Cost of Air Pollution?

- HM Government has…
  - Estimated that removing PM10's/PM2.5's would have a bigger impact on human life expectancy in England & Wales that eliminating passive smoking and road traffic accidents;

  - Estimated that the economic cost of the impacts of air pollution in the UK is £9 - £19 billion per annum – compare that with the economic cost of obesity – over £10 billion pet annum.

  - **Urban vegetation, especially trees, saved the NHS over £1 billion in 2016…**

So what is Urban Forestry and where did it come from?

First, what is Urban Forestry…an oxymoron?… NO!

- Although the words 'forest' and 'forestry' are now generally understood to be connected with trees, this used not to be the case. It can be argued that the word **'forest'** stems from the Latin word **'foris'**, which means **'out of doors'***.

- Thus the urban forest is really the **'urban out of doors'**, and includes **all** urban green space in and around our towns and cities.

*Alexander Porteous (1928) The Forest in Folklaw and Mythology.

Urban Forestry…

- Generally agreed that the term was created in 1965 by Professor Eric Jørgensen of the Faculty of Forestry, University of Toronto [Report on DED in Eastern Canada]

- Concept adopted by the Society of Urban Foresters in the USA, who set up an Urban Forestry Working Group in 1972.

- Arrived in the UK late 1970's?

"Official" History of UF in the UK…

- 1978 : 1st book available: Urban Forestry, Grey, G & Deneke, F. Wiley&Sons [American]
- 1988 : Ist International Conference on Urban & Community Forestry, UK (310 dels)
- 1988 : Black Country Urban Forestry Initiative
- 1989: 12 UK Community Forests born
- 1991 : 2nd International Conference (218 dels)
- 1993 : 3rd International Conference (269 dels)
- 1995 : National Urban Forestry Unit [DoE funded]

"Unofficial" history of UF in the UK...

- C19th Quaker industrialists (Cadbury, Lever, Owen, Iron-Mad Wilkinson, etc.)
- Patrick Geddes (de la Blanche, Le Play, Olmstead)
- Ebenezer Howard
- New Town Movement

COST Action E12

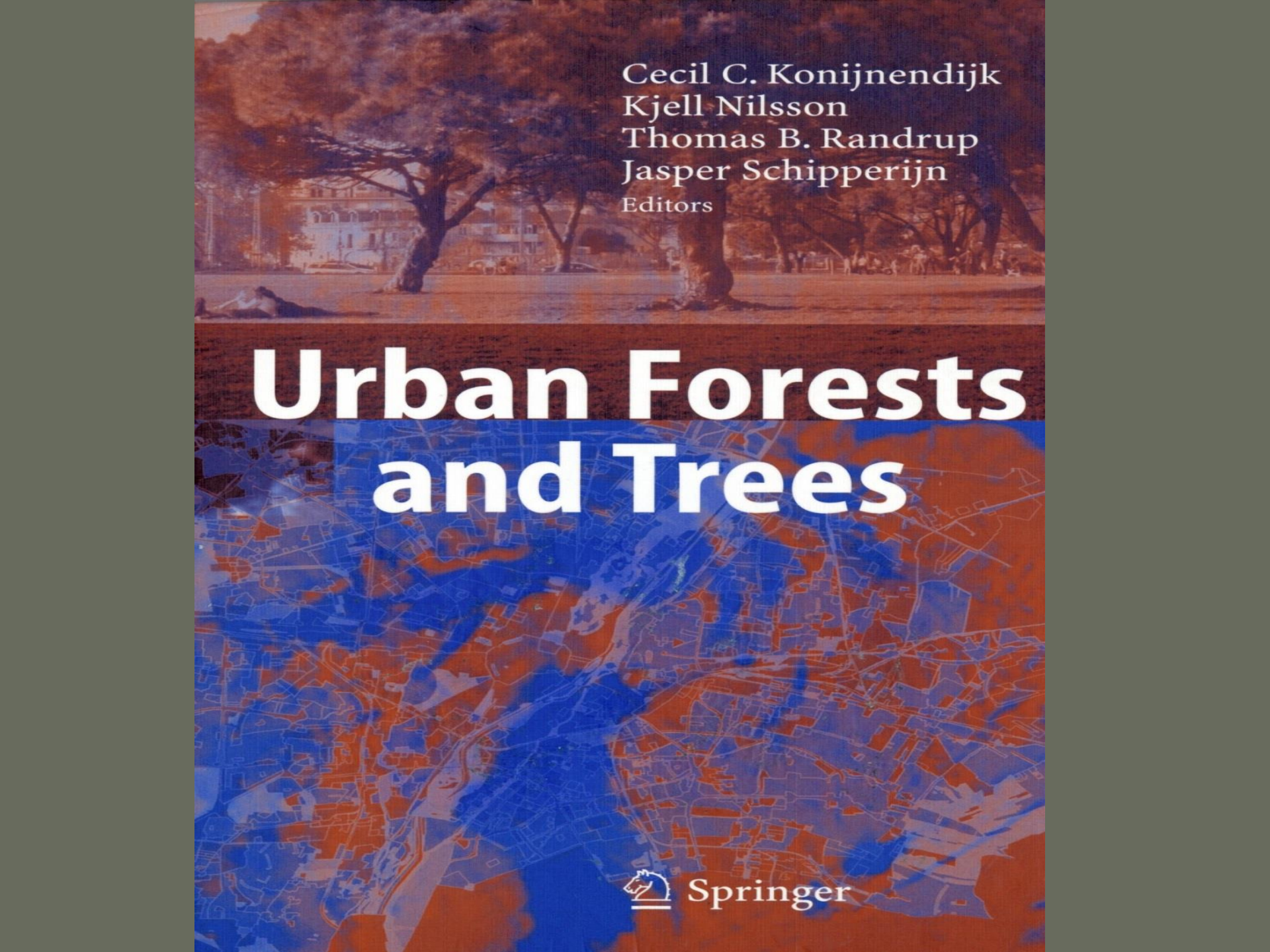*www.fsl.dk/cost_e12*

- **COST Action E12 'Urban Forests & Trees'**

    - 1997-2002, European Union-funded
    - >20 countries, >80 experts
    - Trans-disciplinary
    - Networking, e.g. leading to new projects
    - Concrete outputs: e.g. research overview, education overview, pilot studies, first European reference book on urban forestry
    - DTI appointed Simson to lead the Action for UK…

Established Urban Forestry as a European Concept…

- Integrative

- Strategic

- Inter-/multidisciplinary

- Participatory

- Multi-functionality

- Urban

- It confirmed that European Urban Forestry was a **Specific Scientific Domain**, and was different than that found in the USA…

Cecil C. Konijnendijk
Kjell Nilsson
Thomas B. Randrup
Jasper Schipperijn

Editors

Urban Forests and Trees

Other EU COST Actions involving urban forestry...

- E33: FOREST FOR RECREATION + NATURE TOURISM

- E39: FORESTS, TREES + HUMAN HEALTH + WELLBEING

- C11: URBAN DENSITY + GREENSTRUCTURE

- C15: TECHNICAL INFRASTRUCTURE + VEGETATION IMPROVING RELATIONS etc.

- FP 1204 GreenInUrbs…

cost
EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

COST Action FP1204

Green Infrastructure approach: linking environmental with social aspects in studying and managing urban forests (GreenInUrbs)

2013 | 2017

Objectives

- To increase the understanding of the role of UF in the context of GI from a scientific and a socio-economic perspective, in terms of the ecosystem services provided to people and to the urban environment

- To identify priorities and challenges for future research in the field

- To provide indicators and/or thresholds to be included by policy makers in local, national or international regulations about GI and UF

- To develop guidelines for GI planners and managers on how to implement GI approaches with an emphasis on linking the environmental and social services of UF

Main Achievements

- An interactive website

- A database collating all scientific evidence available on the above mentioned topics

- The results of questionnaires developed among all the countries involved in the Action

- Guidelines for managers and private citizens which will advise on the best tree species and the best practices for the maximization of benefits from GI and UF

- A scientific position paper to highlight research priorities and challenges regarding GI and UF

- Implementation and diffusion of models for the estimation of the benefits derived from UF

- A roadmap for policy makers in order to provide indicators, thresholds and tools to be included in legislation at local, national or European level regarding the governance of GI and UF

- A Book, including all the main achievements by the different WGs

Forests, their Products and Services (FPS)

Participating countries

AT, BE, BG, BIH, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GR, HR, HU, IE, IL, IS, IT, LT, LV, MK, MT, NL, NO, PL, PT, RS, SI, SK, SE, TR, UK

Contact details

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National Research Council (CNR)
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Forest Biology (IBAF) - Italy
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Websites
www.greeninurbs.com
www.cost.eu/domains_actions/fps/Actions/FP1204

COST FP1204
GreenInUrbs

Working Group activities

WG 1 Environmental services of GI and UF and implications of climate change (Ü. Niinemets (EE))

- Qualitative and quantitative data on the environmental services (such as climate change mitigation, water control, phytoremediation, energy saving, microclimatic improvement) provided by UF and GI will be collated

- The activities of this WG will also focus on defining the threats represented by climate change on UF

WG 2 Social/cultural services of GI and UF (C.C. Konijnendijk (DK))

- Qualitative and quantitative data on the social or cultural services (such as aesthetic, spiritual, recreational and education services) provided by UF and GI will be collated.

- This WG will also consider evidence on the social distribution of ecosystem service provision from GI and UF to better understand how a more equitable distribution of benefits can be achieved and maintained.

WG 3 Governance of UF in a GI approach (S. Krajter Ostoic (HR))

- Comparison of governance in different countries and cities and how the governance should be improved in order to maximize environmental and social benefits

- Costs and benefits of the different practices used in both planning and managing UF

WG 4 Integration and Dissemination to stakeholders (G. Sanesi (IT))

- Scientific Communities: it is evident that the MC of the Action will largely be constituted of scientists and that most of the STSM will be carried out within universities or research centers

- GI and UF planners and managers: an important target audience for dissemination of best practice for optimizing the ecosystem services provided by GI and UF will be private companies and technicians or officers of public administrations

- International, national and local authorities: the Action will provide a more thorough qualitative and quantitative understanding of the ecosystem services provided by GI and UF for this audience

- Private citizens: it is clear that most GI and UF in and around our cities belongs to private citizens. The general public are also clearly the beneficiaries of ecosystem services from GI and UF

Non-COST Participants

Center for Ecological-Noosphere Studies of National Academy of Science of Armenia
http://www.sci.am/

University of Mascara, Algeria
http://www.univ-mascara.dz

USDA Forest Service Northern Research Station
http://www.nrs.fs.fed.us/

Tree Canada Arbres, Canada
http://treecanada.ca/en/

Food and Agriculture Organization (FAO) of the United Nations
www.fao.org

…advancing the quality of life and the environment of European Cities through the socially-inclusive planning, design and management of urban woodlands

www.fsl.dk/euforic

Objectives:

- Identify best practices in participatory planning, design and management of urban woodlands.

- Develop, test and disseminate a toolbox for the participatory planning, design and management of urban woodlands.

Funding:

- Project under EU's 5th Framework Programme, Quality of Life and Management of Living Resources

- **NEIGHBOURWoods:** woods at people's doorsteps
  - regular contact with nature, nature education, pleasant living and working environment
- **NeighbOURWoods:** planned & managed for and by local residents
  - public involvement; partnerships; multiple benefits for local population; part of local community
- **NeighbourWOODS:** woodlands of different sizes and character
  - from small woods to large periurban forests; different concepts of 'forest'
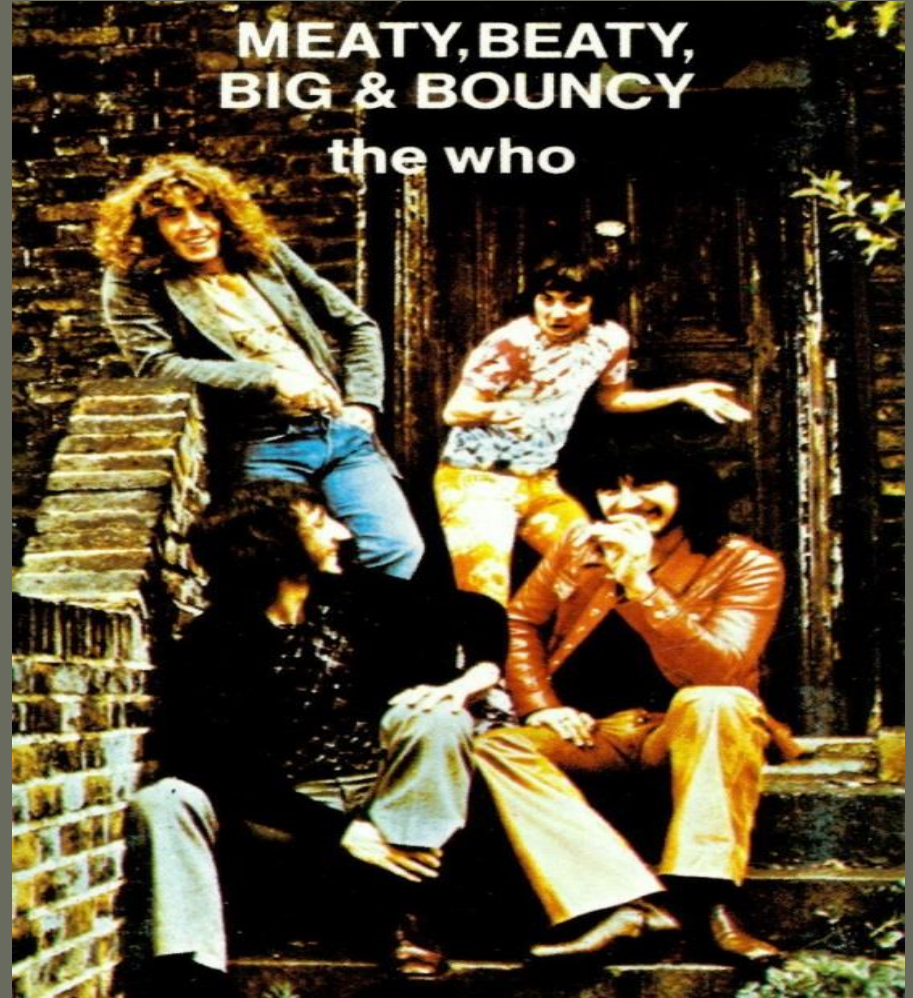
NeighbourWoods
for Better Cities

"A tree on your doorstep – a forest in your mind".

1st European Master Class in UF

How did I get involved with all this Urban Forestry?

A musical career?…

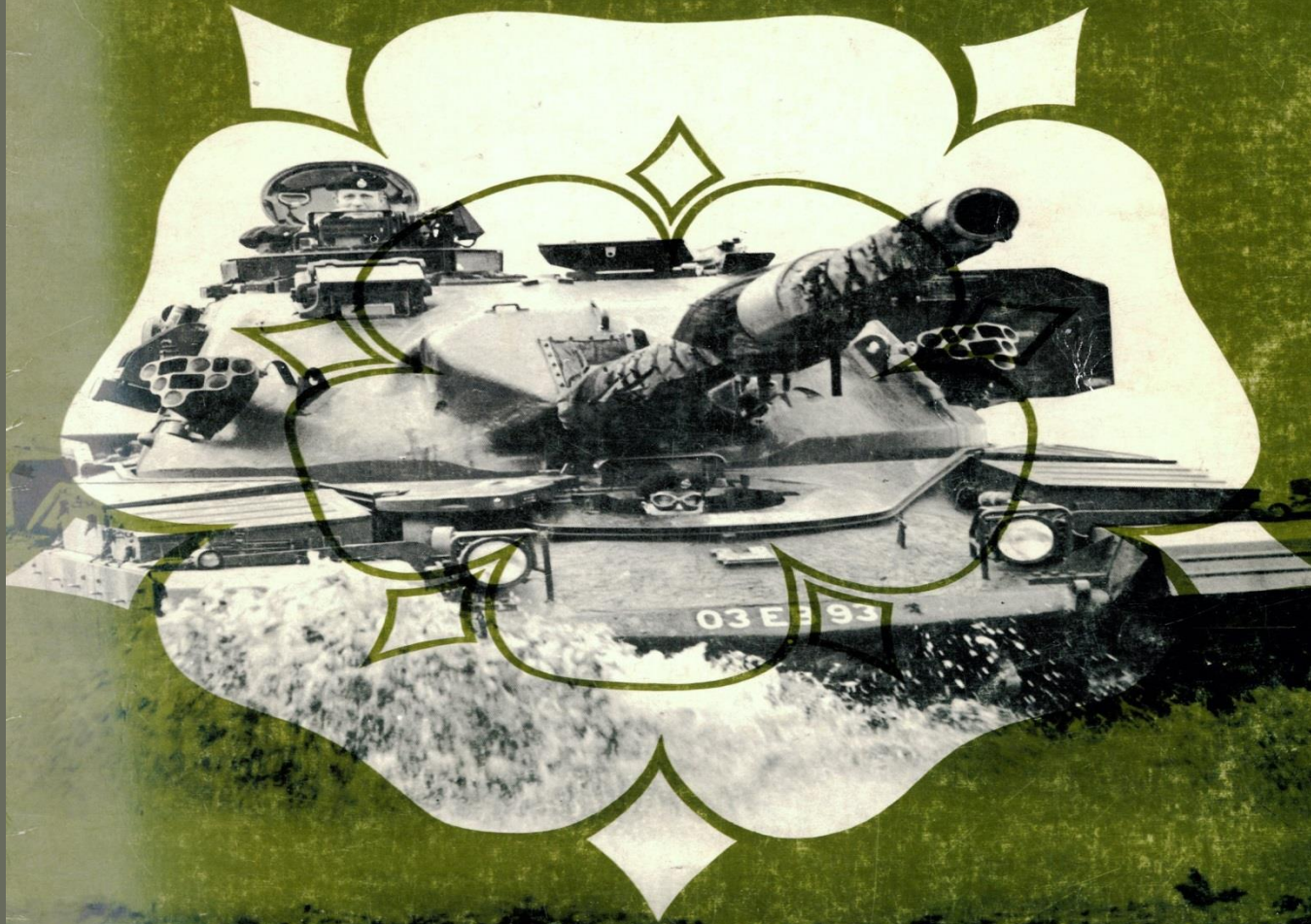# A musical career?…

Camping in the Vondelpark, Amsterdam

Welcome to Amsterdam

WHEN IT'S HOT PLEASE DRESS FOR THE BODY YOU HAVE, NOT THE BODY YOU WANT. THANKS

The start of my urban forestry journey – in Watford High Street!

CATTERICK: LANDSCAPE MASTER PLAN

VOL. III

Telford's Green Network – the 'Forest City' …
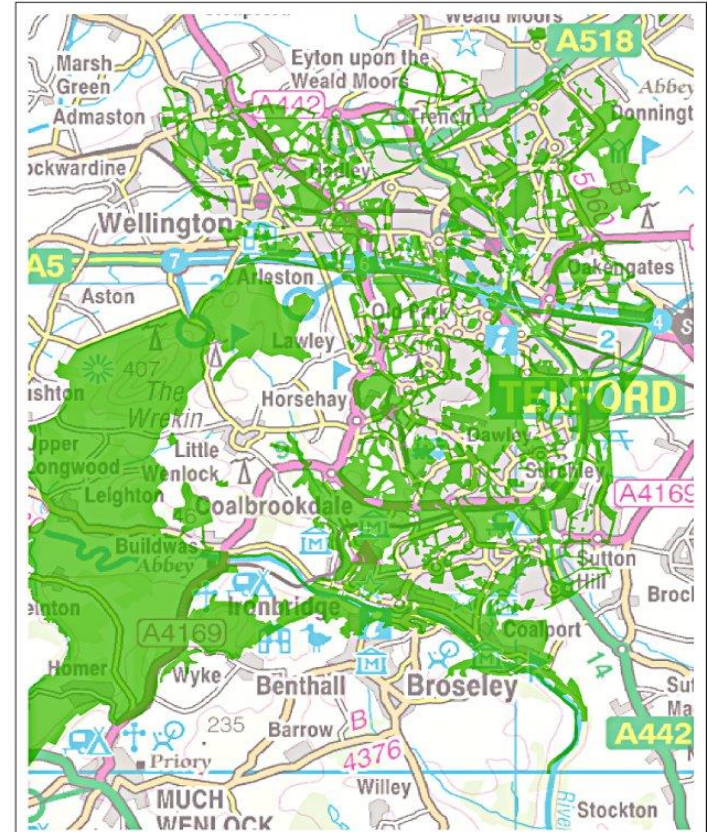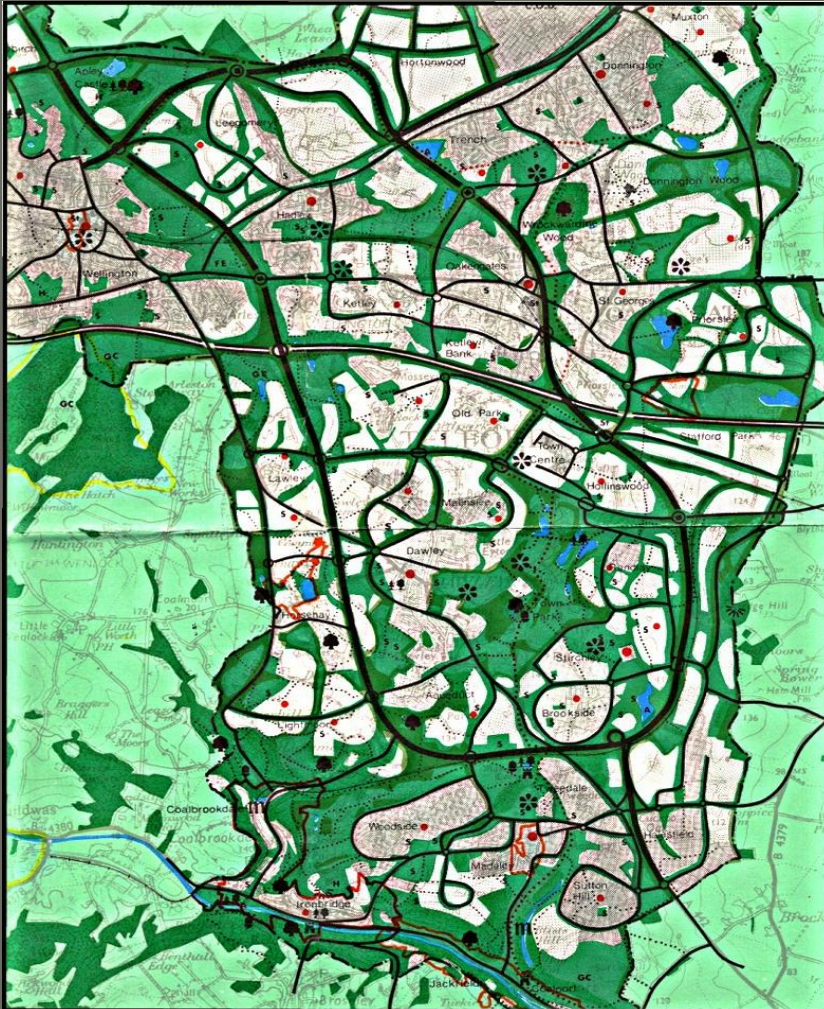
The Forest City…

- TDC acknowledged that the 'urban forest' was structural, and not an adjunct to development – 'Having subscribed enthusiastically to Alexander's philosophy that "a city is not a tree", the Corporation proceeded to make it into a forest" [Lionel Esher]

- Over 6.5 million trees planted / 10 million shrubs

- 138 tree species / cultivars used [YES!]

- 17% tree cover [England average 10.8%]

- KPMG 'The Competitive Alternative'2001: Telford - a "Rising Star"

1975

1987

You met nice people as part of the job…

MEADOW

MEADOW

MEADOW

PLAY

LAKE

PICNIC

PICNIC

CAR PARK

The Telford Urban Forestry approach was successful…

- Intra-specific competition encourage – not inter-specific

- Benign Neglect Management Regime

- There was community involvement in the physical management of the urban forest;

- There was a thriving Children's Forest project with local schools;

- The Greenwood Trust was founded in 1984 [now The Small Woods Association];

- Telford became the first town in the UK to be awarded Forest Stewardship Council [FSC]approved certification for its woodland management programme, thus justifying its design approach.

"The beautiful landscape of Telford is a prize to the eyes"

The Telford – EU Link…

- An invitation arrived from Danish colleagues in March 1996 to assist with the writing / submission of a Concerted Action called "Urban Forestry Network", and submitted to the EU's 4th Framework.
  - Technical / scientific evaluation very good, but…
  - Deemed ineligible under the FAIR programme.
- EU encouraged a re-write, and re-submission as a **COST Action…**

IUFRO European Forum on Urban Forestry (EFUF)

www.efuf.org

- Set up in 1998

- Interaction between practitioners and scientists

- Originally an urban woodland focus, but broadened out…

- Twenty-two annual events so far…

- Actual themes, e.g. funding, communication, educational needs, urban design, health,…

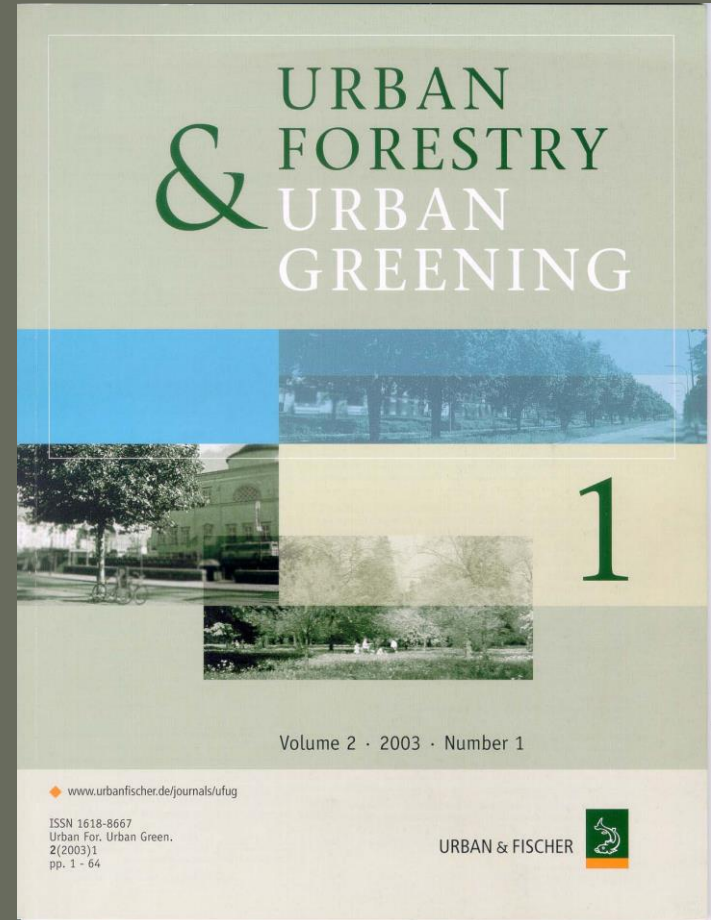# EUROPEAN FORUM ON URBAN FORESTRY

ANNUAL CONFERENCES FROM 1998

Year	Location / Theme
1998	Location : Wuppertal, Germany : The Launch Conference of the European Forum on Urban Forestry . Conference Theme : Multiple-Use of Town Forests in International Comparison.
1999	Location : Ärhus, Denmark. Conference Theme : Communicating Urban Forests to People.
2000	Location : Budapest, Hungary. Conference Theme : Paying for Urban Forests.
2001	Location : Durham, UK. Conference Theme : Partnership-led Regeneration.
2002	Location : Trondheim, Norway. Conference Theme : A Change for the Better.
2003	Location : Arnhem, The Netherlands & Flanders, Belgium. Conference Theme : Educating the Urban Forester
2004	Location : Stockholm, Sweden. Conference Theme : The Urban Woods to be used by everyone.
2005	Location : Celje, Slovenia. Conference Theme : Urban Forests – a different trademark for cities and forestry?
2006	Location : Florence, Italy. Conference Theme : Urban Forestry – bridging cultures, disciplines, old attitudes and new demands.
2007	Location : Gelsenkirchen, Germany. Conference Theme : New Forests after Old Industries.
2008	Location : Hämeenlinna, Finland. Conference Theme : Forest Recreation and Tourism serving Urbanised Societies.
2009	Location : Arnhem, The Netherlands. Conference Theme : Working Together for Green City Values.
2010	Location : Tulln an der Donau, Austria. Conference Theme : Urban People meet Urban Forests.
2011	Location : Glasgow, UK. Conference Theme : Urban Forestry –making connections through Green Networks.
2012	Location : Leipzig, Germany. Conference Theme : Urban Forests – Ecosystem Services and Sustainable Management.
2013	Location : Milano, Italy. Conference Theme : The Walking Urban Forest – a dynamic green infrastructure for our cities.
2014	Location : Lausanne, Switzerland. Conference Theme : Crossing Boundaries – Urban Forests and Green Cities.
2015	Location : Brussels Conference Theme : Connecting the Street Tree to the Forest.
2016	Location : Ljubljana / Celje Conference theme : Urban Forestry for Resilient Cities.
2017	Location : Barcelona Conference theme : Urban Forestry – boundaries within, between and beyond the city.
2018	Location : Helsinki, Finland Conference Theme : Planning of urban forests and other green infrastructure; Participation in the planning of urban forests and other green spaces; Management of urban forests and other green spaces.
2019	Location : Köln, Germany. Conference theme : Urban Forests – full of energy.
2020	Location: Manchester – City of Trees, UK. (Northern Forest) Conference theme : Urban Forestry for a Resilient Future

ooOoo

New Scientific Journal

- New journal launched in 2002

- Elsevier Publishers

- Scientific articles on all aspects of urban forestry and urban greening

URBAN FORESTRY & URBAN GREENING

1

Volume 2 · 2003 · Number 1

www.urbanfischer.de/journals/ufug

ISSN 1618-8667
Urban For. Urban Green.
2(2003)1
pp. 1 - 64

URBAN & FISCHER

www.elsevier.com/locate/ufug

The need for Urban Forestry expands…

- Currently :

    - Asia is 54% urban;

    - Europe is 13% urban, and

    - Africa is 13% urban

A Green Vision for Our Cities

At the dawn of the third millennium, the global population shifted from being predominantly rural to being mainly urban and the trend is set to continue. Unfortunately, all too often this situation has produced highly damaging effects on forest and other tree systems in cities and surrounding areas.

For the most part, the rapid expansion of cities has taken place without any real land use planning strategy in place to support such growth. Another issue that cities face is the absence of platforms for dialogue, which would give urban dwellers the opportunity to define a common vision with national governments and local authorities.

When people wage a daily struggle against hunger and malnutrition, and have to contend with natural disasters such as floods and landslides, forestry related concerns often rank low on the agenda. However, coherent investment by governments and communities in the protection and restoration of suitable forest and tree cover in and around cities, coupled with good governance policies, can make a real contribution to reducing poverty and improving livelihood in an environment that is healthy for all.

Extensive research and experience demonstrates that towns which have taken steps to invest in a green vision have subsequently enjoyed many benefits. For instance, where an efficient green infrastructure is in place, the impact of extreme weather events is mitigated. Moreover, a well managed watershed supplies good quality water and reduces the need for costly engineering works. Consequently, the exorbitant and recurrent cost of rebuilding roads, housing and commercial infrastructures is greatly reduced, generating savings which can in turn be invested in productive sectors. Public and private enterprises generate green jobs and income through multi-usage management and maintenance of woodlands and trees. Finally, farming and landscape systems that incorporate agroforestry and high-yielding plantations can supply nearby markets at competitive prices.

A number of United Nations institutions and programmes are focusing increasing attention on the link between cities, forests, water, biodiversity and poverty. Promoting a green environment for cities is seen as a key element of their strategy for achieving the Millennium Goals. There is also a tendency for greater convergence of agendas of institutions operating at local, national and international levels towards this direction.

FAO is supporting this positive trend with its member countries. FAO's multi-disciplinary priority area «Food for the cities» implements a harmonised development approach which encompasses the links between rural and urban settings, as well as food security and environmental prerogatives.

The Forestry Department and its urban and peri-urban forestry programme helps cities and countries to have a better understanding of the forestry perspective. It contributes by making knowledge and expertise more available and supports FAO member countries in developing planning tools, strategies and plans of action, installing and galvanizing platforms for dialogue to promote wise decision-making at all levels.

A growing number of institutions have expressed an interest in working in this spirit of cooperation and synergy under the aegis of FAO. At recent international meetings (Bogotá, 2008; Rome, 2009), several organizations joined with FAO to map out key areas of intervention. One mechanism identified answers the need for a voluntary arrangement of institutions and experts to foster research and carry through viable solutions. A second strategy consists of using a two-year participatory process to establish voluntary international guidelines for fair decision-making. A third initiative aims to strengthen centres of excellence for urban forestry.

In targeting the land surrounding the main cities and those in the process of becoming major urban centres, we are touching the future of more than half the populations of our countries. It is also fundamental that the green vision for cities be developed in tune with the needs and interests of the rural communities surrounding them. It is only by combining forces and pooling the expertise of the various sectors and institutions involved that we can give coherent and lasting support to the harmonious and equitable development of the cities of today and tomorrow.

Governments, local authorities, foresters and individuals must press for greater dialogue aimed at collective and responsible investment, with the major challenge of reconciling three elements that are inextricably linked: the community, trees and well-being.

For more information, contact FAO:
Michelle Gauthier, Forestry Officer
Forest Conservation Service, FAO, Rome, Italy
Email: michelle.gauthier@fao.org
FAO Web Site: http://km.fao.org/urbanforestry/

三　届　亚　欧　城　市　林　业　研　讨　会
3rd ASEM Symposium on Urban Forestry
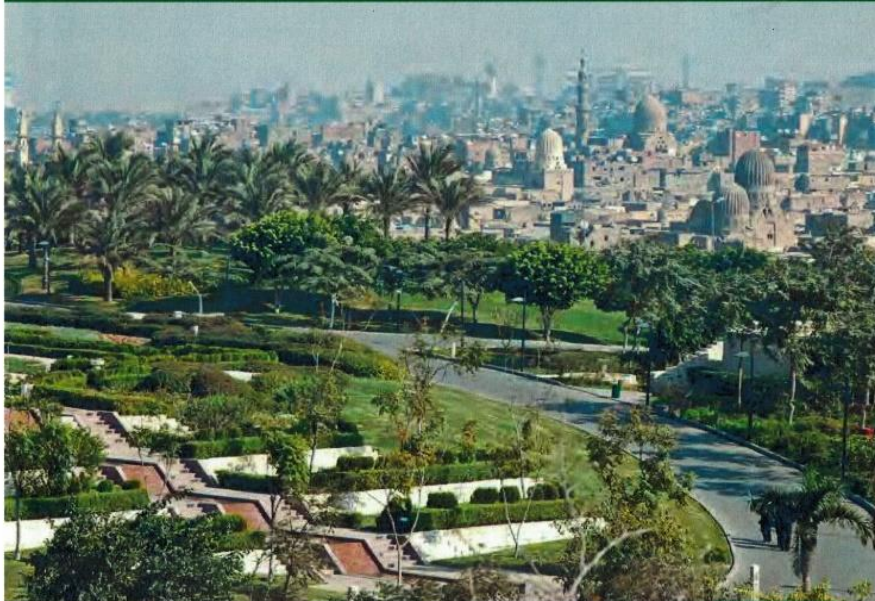中国·广州 2008. 11. 11~13　Guangzhou, China, Nov. 11~13, 2008

英　国
U.K.

Tree planted in
Shanghai on behalf of
the UK.

Food and Agriculture Organization of the United Nations

Guidelines on urban and peri-urban forestry

FAO FORESTRY PAPER

ISSN 1998-2882

178

BENEFITS OF URBAN TREES

Strategic placement of trees in urban areas can **cool the air** by between 2 ºC and 8 ºC.

Large urban trees are excellent **filters for urban pollutants** and fine particulates.

Mature trees **regulate water flow** and **improve water quality**.

A tree can absorb up to 150 kg of CO_2 per year, sequester carbon and consequently **mitigate climate change**.

Wood can be used for **cooking and heating**.

Spending time near trees **improves physical and mental health** by increasing energy level and speed of recovery, while decreasing blood pressure and stress.

Trees can **provide food**, such as fruits, nuts and leaves.

Trees properly placed around buildings can **reduce air conditioning needs by 30%** and **save energy used for heating by 20–50%**.
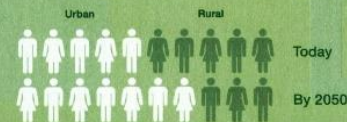
Trees provide habitat, food and protection to plants and animals, **increasing urban biodiversity**.

Landscaping, especially with trees, can **increase property values by 20%**.

World urban population is growing fast...

Urban   Rural   Today

By 2050

...**planting trees today is essential** for future generations!

Food and Agriculture Organization of the United Nations

fao.org/forestry/urbanforestry

©FAO, 2016

C0024e/1/03.16

The Importance of Delivery - the UN's New Urban Agenda

- The Central Goal of the NUA is :

- "to produce just, safe,, healthy, accessible, affordable, resilient and sustainable cities for us all".

- **The NUA declares that Urban Forestry / Urban Greening can help to deliver this…**

AERE   SOCIALI   ANNO   MDCCCXXII

World
Forum on
Urban
Forests

Mantova
27 / 11
01 / 12 / 2018

World
Forum on
Urban
Forests

World
Forum on
Urban
Forests

Mantova
27 / 11
01 / 12 / 2018

UN's Call for Action…CRITICAL INFRASTRUCTURE

PRATO URBAN FOREST

UNIVERSITÀ DEGLI STUDI FIRENZE

DIDA DIPARTIMENTO DI ARCHITETTURA

Discussing & Designing Workshop

keynote guest
Alan Simson, Leeds Beckett University
coordinators
Gabriele Paolinelli, Fabio Salbitano
tutors
Andrea Meli, Paolo Nanni,
Gabriele Paolinelli, Fabio Salbitano
participants
Giulia Bagni, Laura Blanc, Juanca Cisneros
Campana, Fortuna D'Angelo, Stella Fabbri,
Gianna Fedeli, Piercesare Mecarozzi,
Gabriele Pezzani

6|10 MAY 2019

Florence

Department of Architecture
Vegni Palace
93, San Niccolò Street

The sample of study

22nd European Forum on Urban Forestry

Urban Forests – Full of Energy
Cologne (Germany) 22 - 24 May 2019
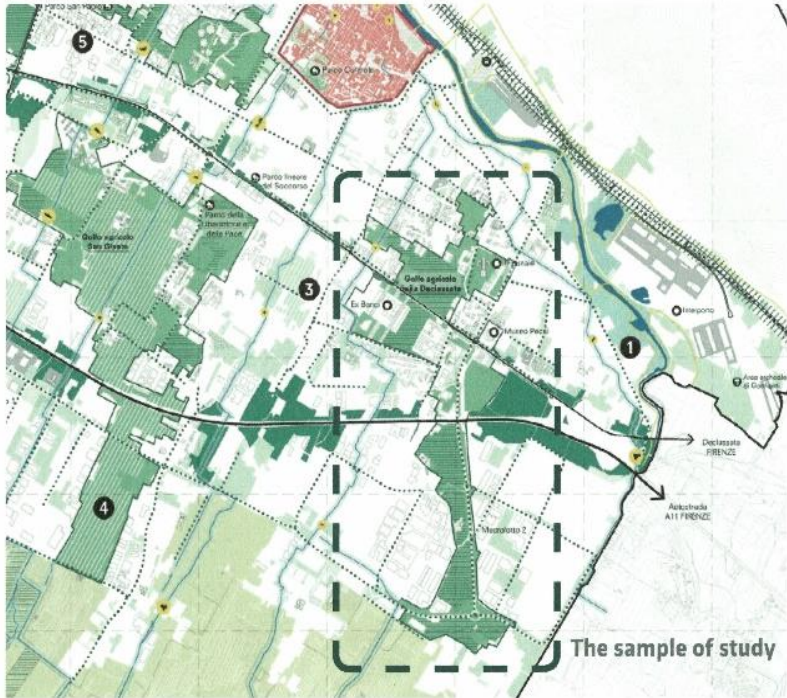
European Forum on Urban Forestry

The **European Forum on Urban Forestry (EFUF)** is a unique meeting place for practitioners, researchers, planners and public authorities to **share interdisciplinary experience and good practices** in urban forestry and urban greening. **Urban forests** include woodlands, urban trees, parks and urban green spaces.

Urban Forests – Full of Energy

Urban forests are vibrant places, providing energy to city dwellers through **recreation, physical activity, and social gathering**, and by providing **resources for an urban bioeconomy**.

Healthy forests — Spiritual forests — Learning forests — Co-creating forests

Location: The **German Sport University Cologne** combines practical experiences with health, social and natural science, and is located in the **Cologne Green Belt** near the energy forest in **Waldlabor Köln** (Forest Laboratory).

Dates: 22—24 May 2019
Website: 2019.efuf.org

15 January 2019: abstract submission deadline
22 April 2019: registration closes
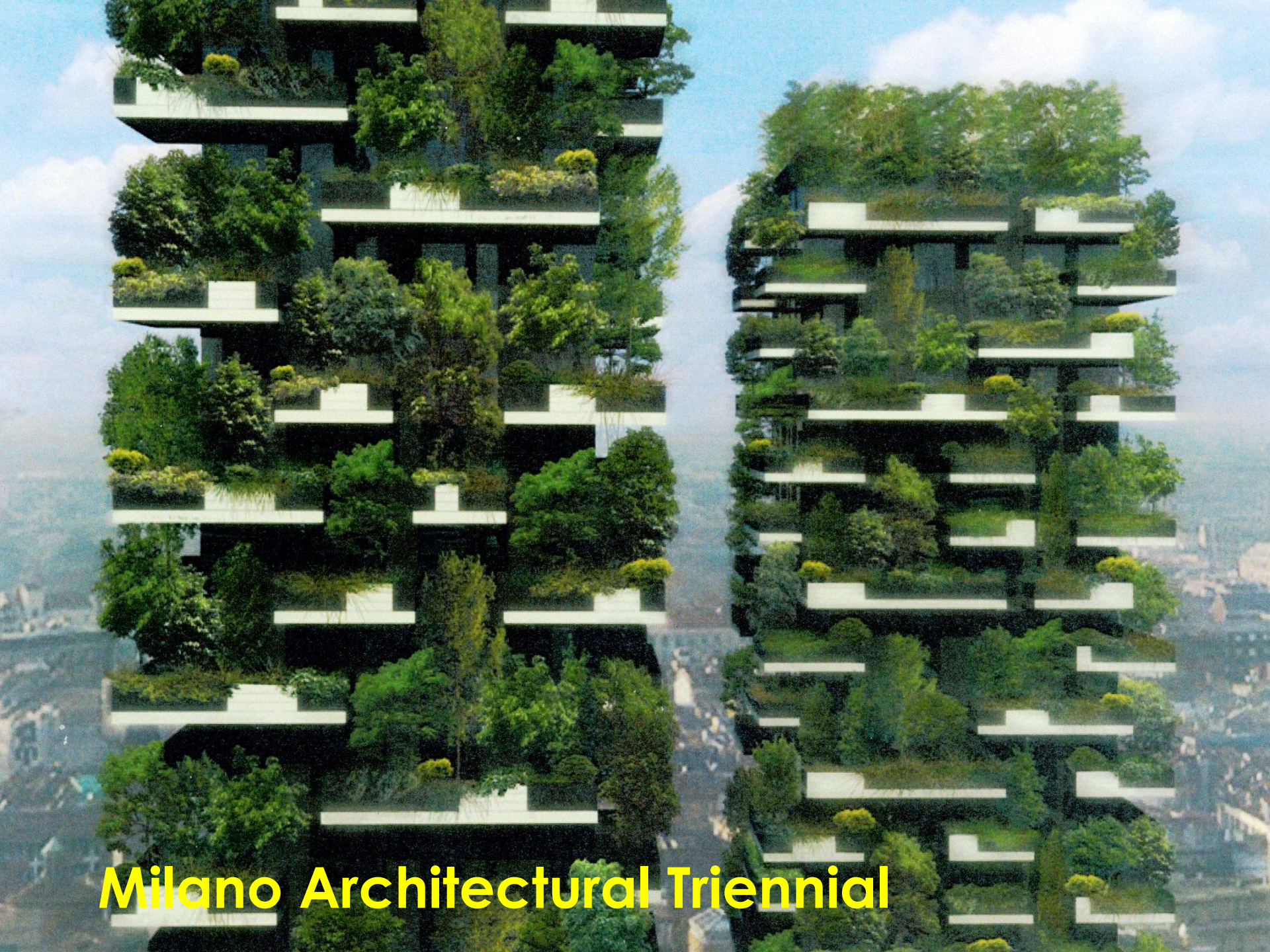
Milano Architectural Triennial

UN's Call for Action...CRITICAL INFRASTRUCTURE

Urban Forestry Futures…

we should use urban forests and trees to make our cities:

1 / Greener

Cities need forests, people need green spaces. In fact, the colour green is often associated with well-being and positive feelings; it's the color of balance, harmony and growth. Green cities are strategic for urban communities and play a key role in our future. Greening our cities involves all aspects of urban life: not only ecology, but the economy, culture, architecture, psychology, education, health and society. When a city invests in peri-urban forests, city parks, green and blue corridors, trees on streets and public squares, private gardens, courtyards and other green spaces with trees, green roofs, and green buildings, the resulting green infrastructure enhances the quality of places where we live, work and play. Trees and forests are the backbone of this green infrastructure and are key actors in the theater of urban landscape. They are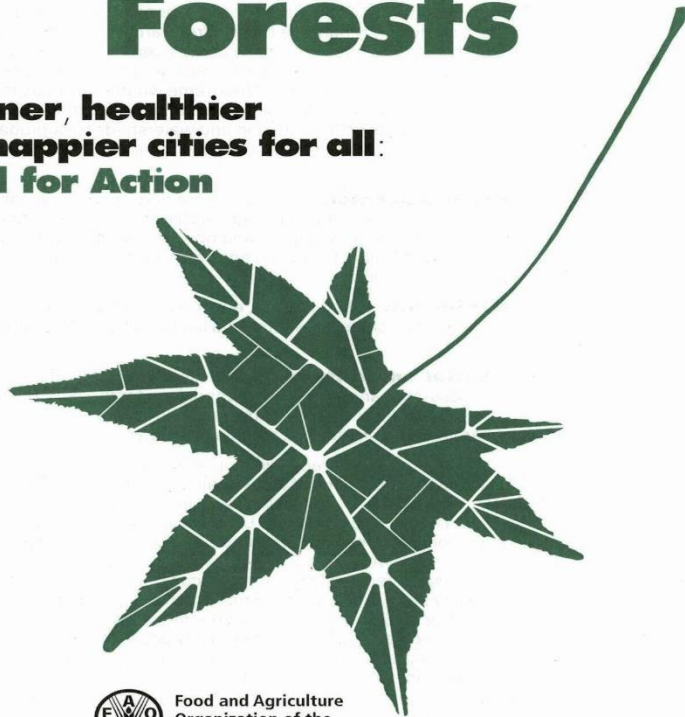 essential elements of the form, dynamics and architecture of cities. To ensure that we can all enjoy the benefits of both existing and new urban green spaces, city planners should pay attention to their equitable distribution and accessibility. The greener the city, the greater its resilience.

we call for:

- networks of well-distributed, quality public green spaces with equitable and easy access for all;

- nature-based solutions and a green infrastructure approach to planning, designing and managing cities for maximizing benefits from urban trees and forests;

- expanding canopy cover in cities, using the right tree in the right place;

- appropriate tools for the development of sound urban forestry and green infrastructure policies;

- celebrations of trees and forests to remind us of the value of nature and green spaces.

· In 2015, Vancouver launched its "greenest city 2020 action plan" where: Clean Air, Green Buildings, Access to Nature, Green Economy, Local Food are driving goals for planning the future of the city.

· In 2004, China launched the "National Forest City" programme in order to respond to the increasing environmental problems due to fast and often unplanned urban growth. In 2020, 200 cities are expected to join the programme. The average annual new forest green cover per city amounts to 14,000 hectares.

· Bangui, the capital city of Central African Republic adopted a strategy and an action plan on the development of urban forestry as a tool to alleviate poverty and ameliorate the quality of life in on e of the poorest countries of the World. Morocco built a national strategy on urban forestry and provided guiding documents accordingly.

2 / Healthier

We usually feel good when we are in a green space. Evidence shows that the presence of trees and urban forests have a positive influence on our health and well-being. Think of urban forests and trees as a kind of *green physician*, improving our health directly and indirectly, and at little expense. Well-designed and managed urban forests and green spaces substantially contribute to healthy lives and well-being through disease prevention, therapy and recovery. These forests filter and efficiently remove pollutants and particulates, helping reduce the incidence of non-communicable diseases. The woodlands and other green spaces in and around cities, provide ideal settings for outdoor recreation and relaxation activities which in turn, help to prevent and treat non-communicable diseases while reducing stress and bolstering mental health.

- A 10 percent increase in urban green space in a community can postpone the average onset of health problems by up to five years.
- A study in London found that the number of medical prescriptions decreased by 1.18 per 1 000 people for every extra tree per km of street
- Children living in areas with good access to green spaces have been shown to spend less time in front of television screens, computers and smart phones and to have an 11–19 percent lower prevalence of obesity compared with children with limited or no access to green spaces
- In the United States of America, trees help reduce or prevent more than 670 000 cases of severe respiratory diseases per year and thereby save more than 850 lives annually).

We call for:

- national public health-care plans that recognize the positive role that urban forests and trees play in our health and well-being;

- reinvestment of health-care savings from urban forest ecosystem services into creation of new green spaces;

- urban forests, therapeutic gardens and open spaces designed with input from health experts to emphasize their healing potential.

3 / Happier

Most people appreciate trees and are happier when they are in green spaces. We urban dwellers use green spaces for relaxation, alone or in groups, for social events and cultural performances. We use these green spaces to get together, meet friends, enjoy free time with our children, to jog, ride a bike, play with our pets, or simply for a stroll through the great outdoors. Many communities support tree planting as well as conservation of existing trees and forests, in both rich and poor areas of cities. Social, cultural and religious values are often associated with urban forests and trees; old, established trees and ancient forests, in particular, can be linked with efforts to preserve our community's cultural heritage. The longevity of these trees, across decades and centuries, helps to connect older and younger generations and fosters our attachments with our towns and cities. Urban forests and other green spaces also provide natural 'classrooms' for environment-related education.

- Being happier in the green is a state that can be easily reached by outdoor walks in urban green spaces at the doorstep. It can lead to a reduction in clinical depression of more than 30 percent compared with indoor activities while helping the development of socially equitable relationships.
- In Helsinki green spaces with trees are the backbone of the structure of the city and thousands of people spending free time there in a late spring sunny day fully justify this planning and governance decision
- In Colombia, greening initiatives offered manifold opportunities to restoring social and ecological resilience in urban areas and thus contribute to a lasting peace after 50 years of conflict.

We call for:

- political agendas that promote green spaces and urban forests as key element of the social and ecological resilience of future cities;

- inclusive social design and management programmes that use urban forests to strengthen community identity;

- equitable distribution of benefits from urban forests across socio-economic and cultural groups;

- educational tools and projects promoting the value of urban forests and trees for cultural heritage;

- research into community perceptions of the recreational and socio-cultural value of urban forests and trees; and the links between nature and happiness.

4 / Cooler

On hot summer days, an urban forest is a breath of fresh air. Throughout history, we humans have enjoyed the shade of trees and their natural cooling effect. Trees mitigate the thermal extremes of the built-up urban environment much more effectively than air conditioning. Urban forests could also, potentially, reduce the vulnerability of cities to climate change. That has clear implications for urban planning policies that might otherwise encourage urban infill — that is, high housing densities and the consequent potential reduction or loss of green spaces. As temperatures rise due to climate change, green spaces are likely to become increasingly important, especially for their direct ameliorating effects on urban microclimates and potential to decrease urban energy consumption by shading and cooling. In parallel, urban forest and trees, as the pillars of green infrastructure, substantially contribute to the reduction of the urban 'heat-island' effect.

- The net cooling effect of a young, healthy tree is equivalent to ten average sized air-conditioners operating 20 hours per day •
- Shade from trees can reduce utility bills for air-conditioning in residential and commercial buildings by 15–50 percent
- Several countries and cities have established minimum green-cover standards for hospitals and convalescence homes
- Trees, urban forests, green roofs, green buildings and vertical forest and vegetation can help reduce urban heat island effects by shading building surfaces, deflecting radiation from the sun, and releasing moisture into the atmosphere. Shaded surfaces, for example, may be 11–25°C cooler than the peak temperatures of unshaded materials. Evapotranspiration, alone or in combination with shading, can help reduce peak summer temperatures by 1 to 5°C.

We call for:

- regular monitoring of the heat-island effect for strategic planning of urban forests to reduce thermal extremes of cities;

- integrated design and co-management of green and grey infrastructure of cities, maintaining/enhancing tree cover throughout the city for maximum comfort;

- nature-based solutions for thermal regulation (hot and cold) of cities, to improve quality of life and cut energy consumption;

- technical guidelines on how to plan, design and manage urban forests and trees to reduce the heat-island effect;

- financial resources for the creation and sustainable management of urban forests and other green infrastructure for climate-change adaptation and mitigation.

5 / Wilder

Biodiversity has an intrinsic value and represents a key element of any landscape, including cities. Habitat fragmentation is the biggest threat to the conservation of wildlife and natural ecosystems in urban areas. Increasing and restoring the functionality and connectivity of urban and peri-urban natural landscapes can be valuable in conserving natural resources and biodiversity. In fact, the more heterogeneous, undisturbed and interconnected our green infrastructure is, the more resilient our ecosystems will be. Although all green space can contribute to biodiversity conservation, it is important to conserve as much as is possible of the original natural vegetation – grasslands, forests, wetlands and riparian corridors (the zone between land and a river or stream.) That's because these are unique habitats for native plants and animals. Diversity also concerns human communities. Urban forest and trees are fundamental for maintaining local identity, providing natural experiences for urban and peri-urban dwellers, creating diverse landscapes, and maintaining cultural traditions. They help create significant landscapes with particular symbolism that preserves a cultural diversity that characterizes most fast-changing cities. Caring for urban forest and trees will help younger generations understand the value of nature, allowing them to enjoy all the social and natural aspects of diversity.

We call for:

- An estimated 20 percent of the world's bird species and 5 percent of the vascular plant species occur in cities (Aronson et al., 2014).
- There are approximately 200 000 trees in Amsterdam's open spaces, and the mosaic of interconnected landscapes provides homes for 140 bird species, 34 mammal species, 60 fish species and six frog and salamander species.
- • On average, 70 percent of the plant species and 94 percent of the bird species found in urban areas are native to the surrounding region.

- conserving and creating an heterogeneous system of natural green spaces within and around urban areas

- developing strategies and guidelines for urban biodiversity conservation and management

- promoting initiatives and schemes to harmonize national/local policies addressed to better interconnect natural landscapes in and around urban areas

- implementing school educational programmes addressed to make students discover, experience and value local biodiversity

6 / Cleaner

Well-managed and healthy urban forests can help to maintain and improve air and water quality in and around cities. Trees in cities can improve air quality through a variety of chemical reactions and by capturing and holding air pollutants. By decreasing air temperature, trees also help us reduce our use of air conditioners which, in turn, saves in energy use and polluting emissions. Urban and peri-urban forests can also contribute greatly to the sustainable management of water and water resources. By protecting soils, reducing erosion, mitigating climate extremes and supporting natural ecosystem processes, trees are often crucial in protecting and conserving watersheds that serve urban communities. By intercepting air pollutants, reducing sediment and filtering rainwater, they can also play key roles in increasing not only availability but also quality of water.

- Urban trees in the conterminous United States of America remove some 784 000 tons of air pollution annually, at a value of US$3.8 billion.
- Trees within cities can remove fine particles from the atmosphere and consequently improve air quality and human health. In a comparative study conducted on 10 American cities, the total amount of PM2.5 removed annually by trees varied from 4.7 tonnes in Syracuse to 64.5 tonnes in Atlanta, with annual values varying from $1.1 million in Syracuse to $60.1 million in New York City. Most of these values were from the effects of reducing human mortality.
- Ninety percent of sediments and nutrients can be prevented from entering waterways by maintaining strips of riparian vegetation.
- In 50 years, one tree can recycle water to the value of US$35 000.

We call for:

- air quality strategies and agendas that recognize and include urban forests and trees to better reduce and remove air pollutants;

- larger urban forests and green belts for greater air pollution filtering;

- sustainably managed peri-urban forests to preserve peri-urban watersheds, particularly those on which the quality of water supply depends;

- regional databases for tree/shrub species selection, including issues related to air pollution.

7/ Wealthier

Investing in urban forests can be a promising strategy to sustainably create jobs, increase income and boost local green economies. In fact, the planning, design, management and use of urban forests can generate employment and business opportunities in: nurseries; gardening; production of food and non-timber forest products such as fuelwood and medicines. It can encourage timber and bamboo industries; tree-care services; tourism; landscaping; and forest management. The shading and windscreen effects of urban forests can help decrease energy consumption by cutting our need for artificial cooling and heating. The positive effects of green spaces on our mental and physical health can generate further public savings; reducing hospital stays and speeding recovery times which generates savings in public health costs. Urban forests and trees can boost property and land values, while also attracting investment, businesses and tourism. Finally, nature-based solutions founded on implementation of urban forests and green infrastructure are often more affordable than traditional/grey approaches to urban development, thus representing an effective and convenient option in addressing urban challenges.

- UPF supports an estimated 15 500 jobs (1.2 percent of total employment) in Manchester City, in areas such as the processing of forest products, tree-related tourism, and professional forestry-related services.
- In New York City, every dollar spent on tree-planting and care provides up to 5.6 dollars in benefits.
- The establishment of 100 million mature trees around residences in the United States of America is said to save about US$2 billion annually in reduced energy costs.
- In the United States of America, the appraised values of homes adjacent to naturalistic parks and open spaces are typically 8–20% higher than comparable properties without such amenities.
- One study found that, on average, prices for goods purchased in Seattle (United States of America) were 11 percent higher in landscaped areas than in areas with no trees.

We call for:

- cost-benefit analysis of services derived from urban forests, trees, and green spaces;
- increased use of green, as opposed to grey, infrastructure in urban development strategies;
- agreements, policies and regulations to promote green and circular economy models based on sustainable management of urban forest and trees;
- promotion and creation of green jobs and economic opportunities in urban forests and green spaces.

8 / Safer

Climate change, rapid urbanization, high-density and growing urban populations are together increasing the vulnerability of our cities. Many of us living in urban and peri-urban areas face potential risks to our health, well-being and livelihoods.

Yet well-managed urban forests offer opportunities to restore degraded, neglected and abandoned lands and remediate degraded soils. Sustainable management of urban forests and trees reduces risks from wildfires, which are increasing near built-up areas. Urban forests and trees can help minimize damaging runoff during periods of intense rainfall and reduce the severity of flooding. Urban trees and green spaces have positive social effects and increase safety by attracting people to meet and socialize, play sports, and relax.

Mismanaged trees could pose a safety hazard if, during storms, they drop limbs. However, the knowledge and solutions exist to minimize these risks.

- After the failure of structural flood defences in New Orleans after Hurricane Katrina in 2005, the city has taken steps to increase the resilience of the city to sea level rise, hurricanes and flooding. There has been a clear shift from structural defences to more natural solutions utilising green and blue infrastructure based on Dutch experiences.
- In Northumberland, woodlands have been shown to provide £1,200 per hectare in flood alleviation savings versus the cost of engineering a solution.
- The Mt. Tabor sustainable drainage system installed in Portland, Oregon uses terraces for stormwater processing with the lower areas processing the water for human consumption while the whole area is surrounded with walkways and promenades. The system effectively copes with storm events whilst using nature to clean road run-off and overflows into local rivers have been cut by 35%.
- A study conducted in Baltimore, United States of America, showed that a 10 percent increase in canopy cover was linked to a 12 percent decrease in crime (Troy, Grove and O'Neil-Dunne, 2012)

We call for:

- nature-based solutions to increase urban communities' resilience to extreme weather events, floods, storm-water runoff, landslides;
- management of urban forests and tree to reduce public health risks associated with their presence in the urban environment;
- urban green space plans aimed at increasing social cohesion and reducing crime.

Activity in the UK attempting to respond to the Call for Action…

The White Rose Forest Partnership…

- Was launched on **Yorkshire Day 2000** as a regeneration initiative to encourage economic investment and human health and well-being through environmental improvement;

- Is based upon a **Joint Venture Agreement** (JVA), the minimum legal agreement that allows signatories to work together to attract funds and deliver projects;

- Has planted over **1.2 million trees** to date;

- Was recognised as a Local Government **"Trailblazer"** in the Coalition Government's Natural Choice White Paper for its ground-breaking green infrastructure work with the then Yorkshire Forward;

- Was a **key player** in the setting up of the Yorkshire West Local Nature Partnership;

- Favours the concept of urban forestry, but works over the five domains of **urban, sub-urban, peri-urban, commute and rural.**

The Northern Forest…
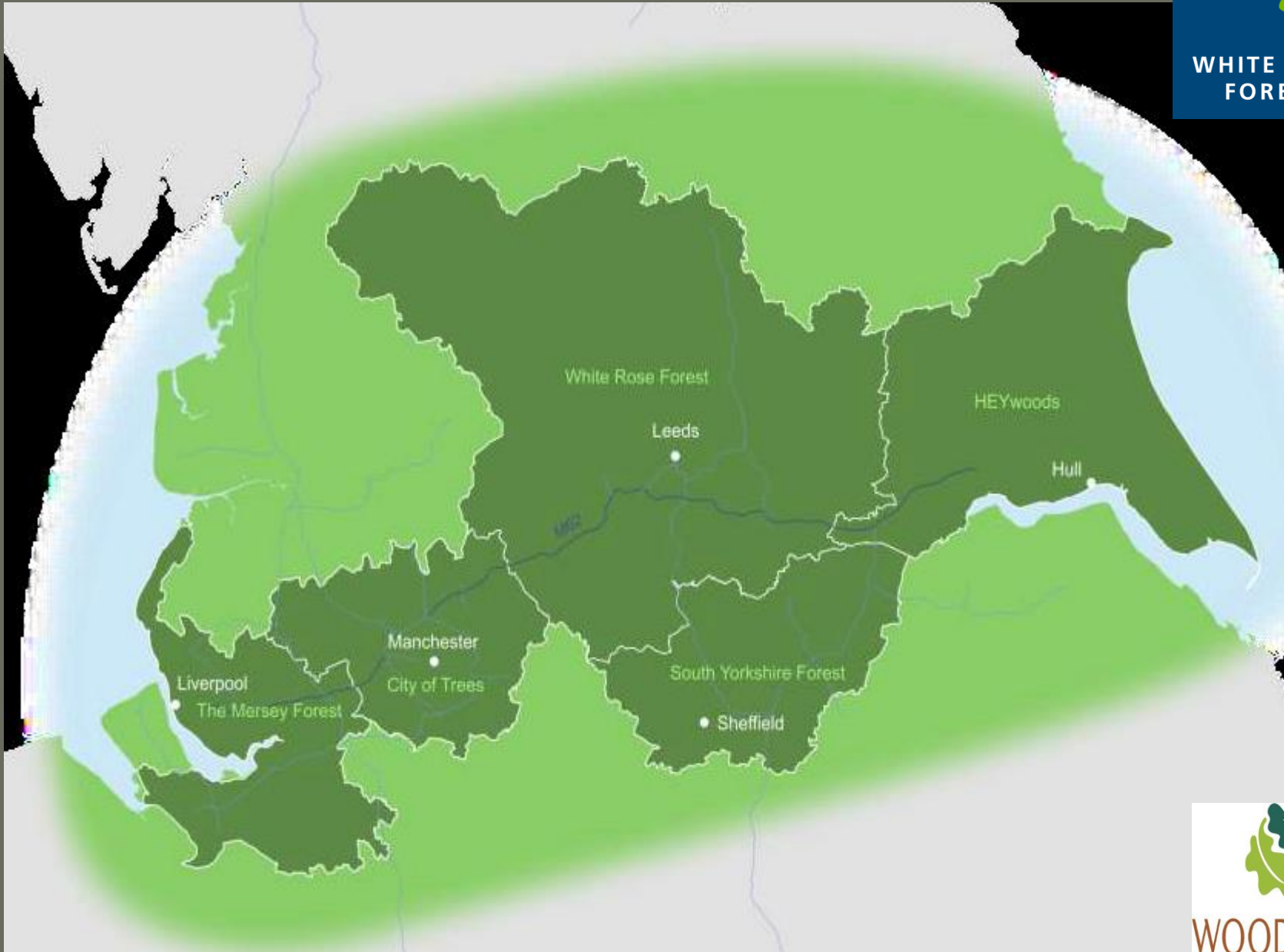

A new Northern Forest

- Let's plant a thought. We live in a time when it seems as if almost anything could happen. Technology, ecosystems, politics, economies, our everyday habits; change is ubiquitous. Some change is positive, some less so. Mutability is something we are learning to live and work with…

Northern Forest – re-balancing the British economy

HM Government

A Green Future: Our 25 Year Plan to Improve the Environment

4. Focusing on woodland to maximise its many benefits

We will increase tree planting by creating new forests, and incentivising extra planting on private and the least productive agricultural land, where appropriate. This will support our ambition to plant 11m trees.

We will take the opportunities of other landscape scale interventions, including when scoping a Nature Recovery Network, to drive extensive woodland planting while enhancing our distinctive landscapes. We will also work with industry and support Grown in Britain to increase the amount of home grown timber used in England in construction, creating a conveyor belt of locked-in carbon in our homes and buildings. A wide range of economic and environmental benefits will flow from commercial afforestation to meet the growing demand for timber.

We will not focus solely on planting, however; we will also support increased protection of existing trees and forests. Pests and diseases threaten the wide range of benefits we derive from trees and plants. We want to make sure our trees can withstand future threats.

Beyond the economic benefits, the Government recognises the significant heritage value and irreplaceable character of ancient woodland and veteran trees. We are committed to ensuring stronger protection of our ancient woodlands, making sure they are sustainably managed to provide a wide range of social, environmental, societal and economic benefits.

i. Supporting the development of a new Northern Forest

We will support the planting of a forest that crosses the country in a belt of trees, using the M62 corridor as its spine. With £5.7 million of government funding, we will support the existing partnership of the Community Forests and the Woodland Trust to accelerate and further develop the Northern Forest. This will deliver accessible community woodland to a large swathe of England and at the same time help us to meet our statutory carbon budget requirements. This area has an increasing population, meaning that future generations will benefit from this new forest.

Looking up into the crown of an Ash tree (Photo Forestry Commission / Isobel Cameron)

We will make sure that landowners, farmers and key forestry stakeholders help lead the work, and that it balances the various environmental, social and economic benefits of forestry. We will explore the best use of innovative forms of private sector finance, including philanthropic, social and commercial investment.

Northern Forest – re-balancing the British economy

Our area is changing — we need to respond

With below average woodland cover, but above average ambition, the North of England is perfectly placed to leverage huge value from renewed investment in community forests.

13m population ↑ **9**% in the next 20 years

650k new homes planned for the Northern Forest area

7.6% woodland cover — UK average = 13% — EU average = 44%

>£75bn infrastructure investment planned over the next 25 years

The area has an abundance of transport infrastructure, with key gateways served by **2** & **7** plus a new unified transport body, Transport for the North — ports — airports

1 million companies help the area generate over **£304**bn (that's 18% of England's GDP)

25 years

50m trees

National Forest showed clear link between woodland cover and economic development

- **600,000 trees planted already!**
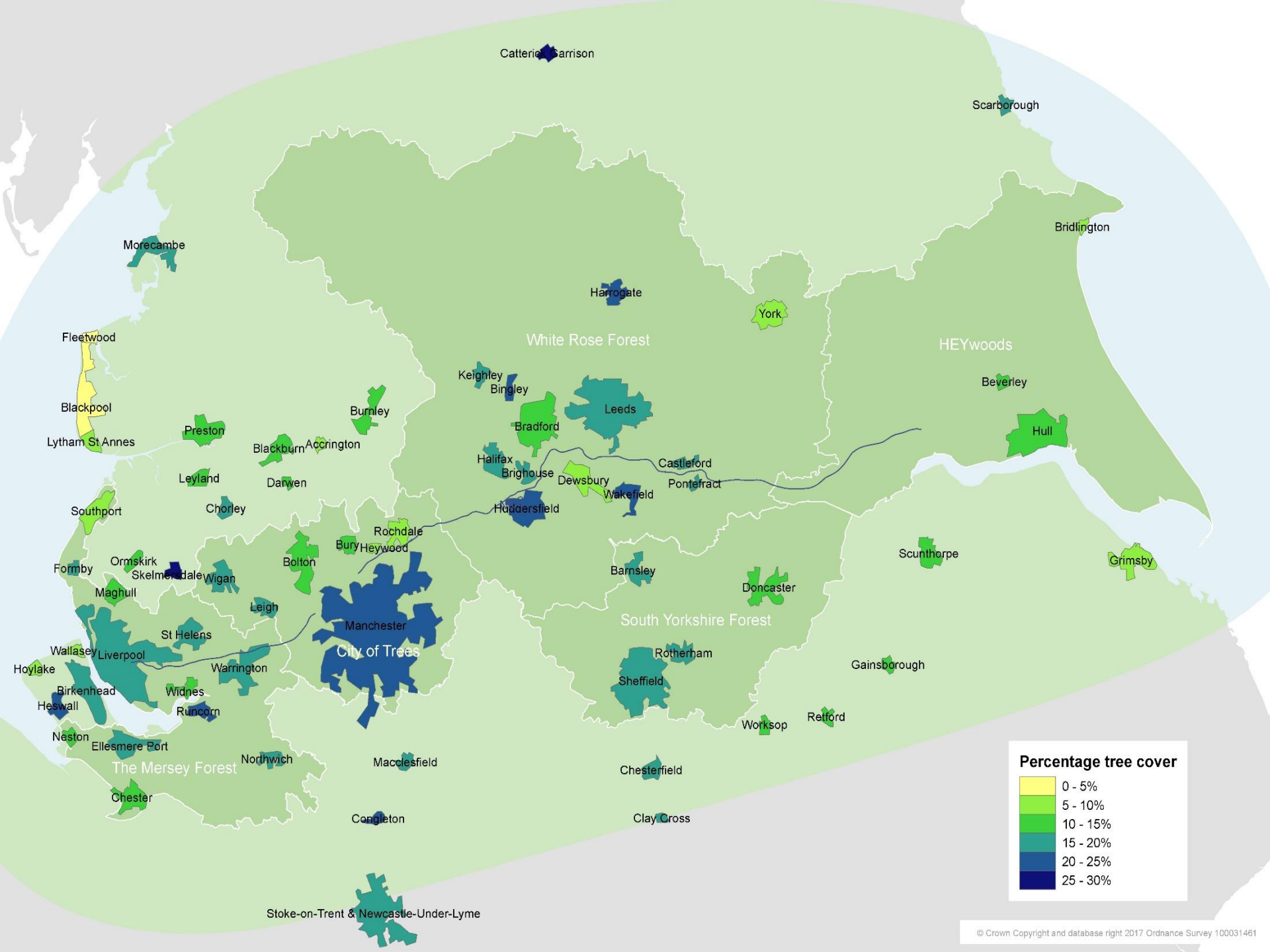
Catterick Garrison
Scarborough
Morecambe
Bridlington
Fleetwood
Harrogate
York
White Rose Forest
HEYwoods
Blackpool
Beverley
Lytham St Annes
Keighley
Bingley
Burnley
Hull
Preston
Bradford
Leeds
Blackburn Accrington
Leyland
Halifax
Darwen
Brighouse
Castleford
Dewsbury
Chorley
Wakefield
Pontefract
Southport
Huddersfield
Rochdale
Formby
Bury Heywood
Ormskirk
Bolton
Barnsley
Scunthorpe
Skelmersdale
Grimsby
Wigan
Maghull
Leigh
Doncaster
Manchester
St Helens
City of Trees
South Yorkshire Forest
Wallasey
Liverpool
Rotherham
Gainsborough
Hoylake
Warrington
Birkenhead
Widnes
Sheffield
Heswall
Runcorn
Neston
Worksop
Retford
Ellesmere Port
Northwich
Chesterfield
Chester
Macclesfield
The Mersey Forest
Congleton
Clay Cross
Stoke-on-Trent & Newcastle-Under-Lyme

Percentage tree cover

- 0 - 5%
- 5 - 10%
- 10 - 15%
- 15 - 20%
- 20 - 25%
- 25 - 30%

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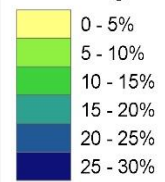
Trees for Learning

- The WRF helps Primary State School children to connect with nature by planting and looking after trees in their neighbourhoods (also recommended in the Government's 25 Year Plan);

- During the 2017/18 planting season, WRF Partners worked with 24 schools and 1500 children to plant 8600 trees.

- Next year, a Celebration Wood will be planted in memory of the late Jo Cox MP, and her 'More in Common' charity.

LCR Green & Blue Infrastructure Strategy

Leeds City Region
Green and Blue Infrastructure Strategy

Executive summary

1. Introduction

Our region's green spaces and waterways are among its defining characteristics. This strategy and delivery plan sets out how we will make the most of the region's amazing natural assets to help our economy prosper, enable people to enjoy a great quality of life, and combat the effects of climate change.

As a result of this strategy we will ensure that everyone in Leeds City Region has easy access to a high-quality, safe and well-used network of footpaths, cycleways, green spaces, waterways and wildlife habitats. This "green and blue infrastructure" will contribute towards a strong economy, a sustainable environment and outstanding quality of life.

The actions we and our partners across the region will deliver in response to this strategy will also contribute to our ultimate goal, set out in our Strategic Economic Plan, of making Leeds City Region a zero carbon energy economy underpinned by high quality green and blue infrastructure.

2. Where we are now: our strengths and challenges

From our three national parks, to our world-class cycling infrastructure, to our canals, which have transported goods from the Industrial Revolution to the present day, our region is known nationally and internationally for the quality of its green and blue infrastructure.

Despite these well-known strengths, we also face a number of challenges in ensuring our natural assets play their full part in supporting economic growth that benefits everyone in our region, and in helping us respond to the consequences of rising global temperatures and the impact it brings.

Our strengths:

- Unique in England in having large urban areas in close proximity to a high-quality natural environment.

- Large number of natural designations ranging from the Yorkshire Dales National Park and Nidderdale Area of Outstanding Beauty to Sites of Special Scientific Interest and Local Wildlife Sites

- Strong green and blue infrastructure sector with interest ranging from large national organisations to small community groups

- Excellent cycling and walking provision, including the country's only segretated cycleway linking two major cities – the 23km Leeds-Bradford cycle superhighway

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The challenges we must address:

- Over 63,000 homes and more than 27,000 businesses at some degree of flood risk

- 7,385 homes and 4,698 businesses at a high risk of flooding

- Less than 17 percent of City Region's blanket bog peatlands are in good condition

- Tree cover lower than the national average of 10%

- Areas of deprivation with poor access to green and blue spaces

- Long-term uncertainty over maintenance of, and funding for, green and blue infrastructure

- Poor integration of green and blue infrastructure into new housing and other developments

- Significant issues related to physical and mental health

- Uncertainty over agricultural and environmental policy and support after Brexit and the effect this will have on businesses across the City Region

- Uncertainty around support for peatland restoration after 2020 once EU funding is withdrawn

- Conventional economic appraisals to make the case for investment in new developments do not take into account green and blue infrastructure

- Size of the green and blue infrastructure sector in terms of economic output and people employed is unknown

3. Where we want to be: our vision

> Everybody in the City Region is within easy reach of an outstanding and well used network of green and blue infrastructure that reduces flood risks and supports health, the economy, the environment and a superb quality of life.

4. How we will get there: our priorities

To achieve our ambitions we will focus on seven priority action areas:

1. **Effective water management and flood risk reduction** – developing natural flood management programmes and drainage solutions

2. **Build green and blue infrastructure into physical development and housing** – creating vibrant, healthy and inspiring places where people want to live, work and invest

3. **Enhance green and blue corridors and networks** – integrating green and blue infrastructure within the transport routes that link our towns, cities and rural areas

4. **Improve community access to and enjoyment of green and blue infrastructure** – building healthier, more environmentally sustainable communities

5. **Plant and manage more trees and woodlands** – improving air quality, reducing carbon emissions and creating a greener, even more attractive region

6. **Restore the uplands and manage them sustainably** – improving natural flood management, carbon storage and providing an agricultural system that works for the region

7. **Business growth, jobs, skills and education** – demonstrating the economic benefits of investing in green and blue infrastructure and developing skills and job opportunities in green occupations such as land management, agriculture, forestry, parks and gardens

5. Key projects and actions

These are the key projects and actions that will enable us to meet our priorities:

Leeds City Region natural flood management programme

Identify and deliver a pipeline of natural flood management projects to reduce the risk and impact of flooding in the region

Inclusive growth integration

Embed inclusive growth principles – including green and blue infrastructure and health and wellbeing – into the appraisal of capital development projects

Network of off-road, safe cycling and walking routes

Increase the number of off-road and / or largely safe cycling and walking routes in the City Region

Leeds City Region green and blue infrastructure map

Understand the full picture of green and blue infrastructure provision across the region by developing a City Region-wide green and blue infrastructure map

Green and blue infrastructure funding

Identify funding for the development and maintenance of green and blue infrastructure (this is a major barrier currently)

White Rose Forest plan

Set out how the White Rose Forest in Yorkshire will achieve its share of commitments to creating a Northern Forest

Peatland restoration programme

Map, plan and prioritise peatland restoration projects across the City Region and identify funding beyond 2020

Post-Brexit agricultural and environmental policy

Agree policies and other mechanisms to promote environmental and agricultural benefits in Leeds City Region after Brexit, including through devolution

Green and blue infrastructure jobs, skills and GVA assessment

Better understand the evidence relating to jobs, skills and economic output within the green and blue infrastructure sector

Green and blue infrastructure skills programme

Create opportunities for people to develop skills relevant to green and blue infrastructure-related jobs

Consistency of green and blue infrastructure planning policy

Explore how such policies could be more consistent across the City Region

Green and blue infrastructure resource targeting

Develop mechanisms to focus green and blue infrastructure investment in the areas of greatest need

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6. How the strategy will make a difference

Benefits of delivering this strategy for people and businesses in the region will include:

- Increased economic growth and productivity
- Reduced risk and economic impact of flooding across the City Region
- Greener, more attractive places that attract investment and talent
- A healthier, more productive workforce
- Increased property values

Inclusive growth that benefits everyone

- Improved health and wellbeing among residents
- Greener, more attractive places to live in
- Increased physical activity leading to lower obesity levels and fewer serious diseases
- More opportunities to bring communities together

Reduced carbon emissions

- Reduced carbon emissions and improved carbon storage potential
- Improved air and water quality

Find out more

Read our full Energy Strategy and delivery plan here

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#zerocarbonlcr

West Yorkshire Combined Authority

Working in partnership with the

Leeds City Region Enterprise Partnership

GREEN STREETS®

in the Leeds City Region

Additional Growth
from Green Infrastructure
investments in the
West Yorkshire Transport Fund

This document aims to:

1   Outline the Leeds City Region Local Enterprise Partnership's aspirations for green infrastructure to support growth and attract investment

2   Using case studies to provide a working methodology and business case for integrating green infrastructure into WYTF schemes

3   Lay out a road map for securing external funding to support green infrastructure investment in the WYTF

Green Streets will include...

- Street Trees [the right tree planted in the right place, in the right way - for the right reasons]
- Other Tree Planting
- Rain Gardens / Surface Water accommodation
- Green Roofs and Walls
- Urban Orchards
- Natural Habitats
- Green Ways

GREEN STREETS
in the Leeds City Region
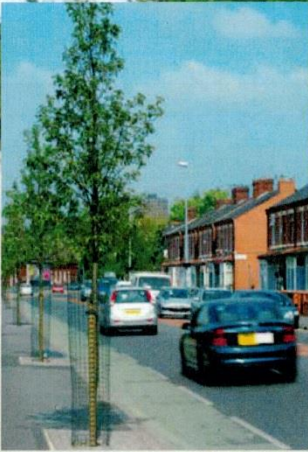
Additional Growth
from Green Infrastructure
investments in the
West Yorkshire Transport Fund

Green Streets Task Group

- This is a WRF Group, chaired by Leeds City Council, that aims to refresh and update the Green Streets concept and document;

- This will involve setting up a trans-disciplinary team;

- This Team will agree on a deliverable a vision;

- It will promote the issues that GBI can engage with;

- It will support economic appraisal of activities – urban trees are assets not liabilities, and

- It will deliver the quality promised…

Street Design...

Dimensional criteria for locating trees

Maturing tree

DKE

Newly planted tree
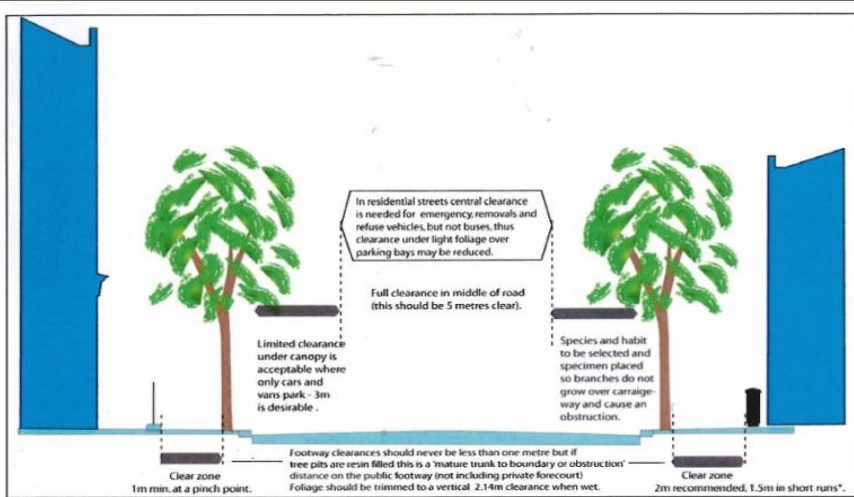
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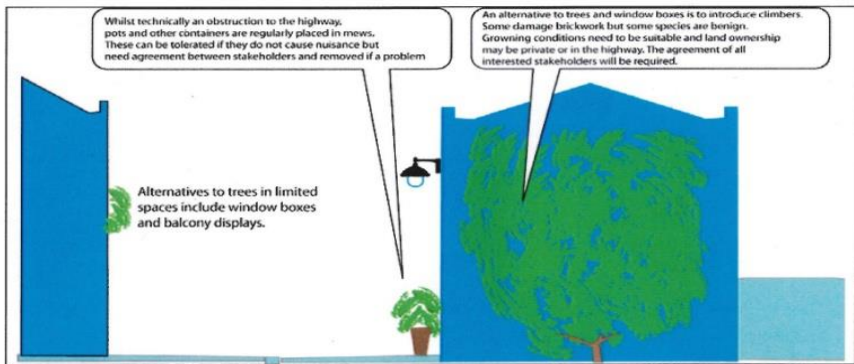d

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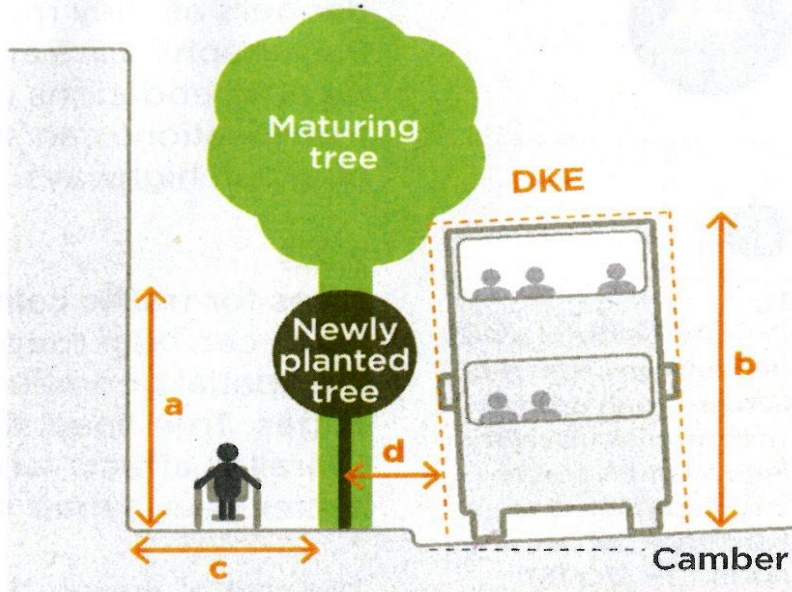
Not to scale: for illustrative purposes only

a. Vertical clearance over footways for pedestrians (eg 2.5-3 metres)
b. Vertical clearance over the carriageway for tall vehicles (eg 4.5 metres)
c. Horizontal clearance on footways to accommodate a wheelchair or buggy
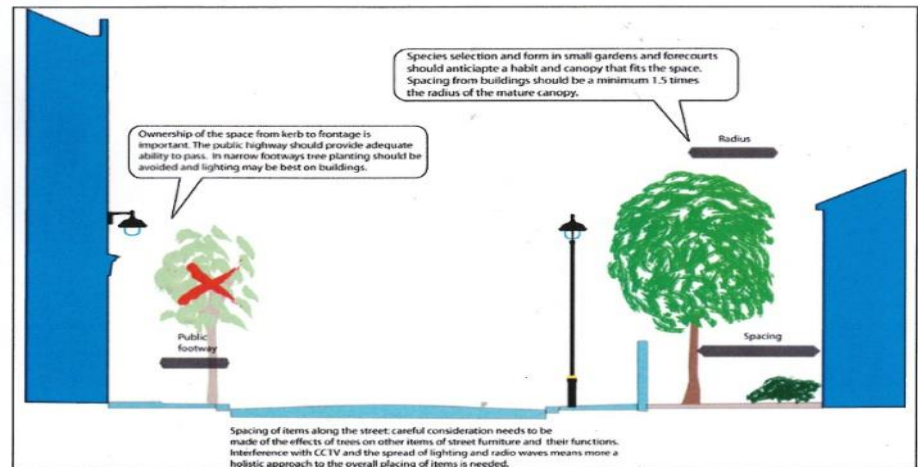d. Horizontal clearance to accommodate vehicle DKE: (eg 0.6 metres)

Residential streets with low footfalls

In residential streets central clearance is needed for emergency, removals and refuse vehicles, but not buses, thus clearance under light foliage over parking bays may be reduced.

Full clearance in middle of road (this should be 5 metres clear).

Limited clearance under canopy is acceptable where only cars and vans park - 3m is desirable.

Species and habit to be selected and specimen placed so branches do not grow over carriage-way and cause an obstruction.

Footway clearances should never be less than one metre but if tree pits are resin filled this is a 'mature trunk to boundary or obstruction' distance on the public footway (not including private forecourt) Foliage should be trimmed to a vertical 2.14m clearance when wet.

Clear zone 1m min. at a pinch point.

Clear zone 2m recommended. 1.5m in short runs*.

The footway clear zones should be 2m. 1.5m is the minimum where 2 or more obstructions are located adjacent to each other. **1m is the absolute minimum width for a single pinch point**, measured from the maximum anticipated trunk size, and only public highway can be included in the measurement.
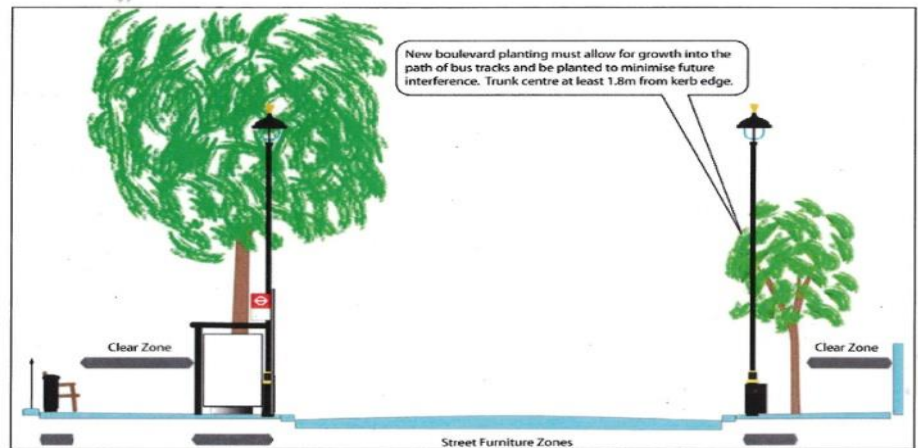
Mews & shared-surface courts

Whilst technically an obstruction to the highway, pots and other containers are regularly placed in mews. These can be tolerated if they do not cause nuisance but need agreement between stakeholders and removed if a problem.

An alternative to trees and window boxes is to introduce climbers. Some damage brickwork but some species are benign. Growing conditions need to be suitable and land ownership may be private or in the highway. The agreement of all interested stakeholders will be required.

Alternatives to trees in limited spaces include window boxes and balcony displays.

Mews are generally unsuitable for tree planting, but climbers, window boxes and pot plants can add welcome greenery

Narrow footways or streets with front gardens

Species selection and form in small gardens and forecourts should anticipate a habit and canopy that fits the space. Spacing from buildings should be a minimum 1.5 times the radius of the mature canopy.

Ownership of the space from kerb to frontage is important. The public highway should provide adequate ability to pass. In narrow footways tree planting should be avoided and lighting may be best on buildings.

Radius

Spacing

Public footway

Spacing of items along the street: careful consideration needs to be made of the effects of trees on other items of street furniture and their functions. Interference with CCTV and the spread of lighting and radio waves means more a holistic approach to the overall placing of items is needed.

Trees in front gardens make a valuable contribution to the street, but careful consideration should be given to its size when fully grown. Planting in narrow footways will be avoided.
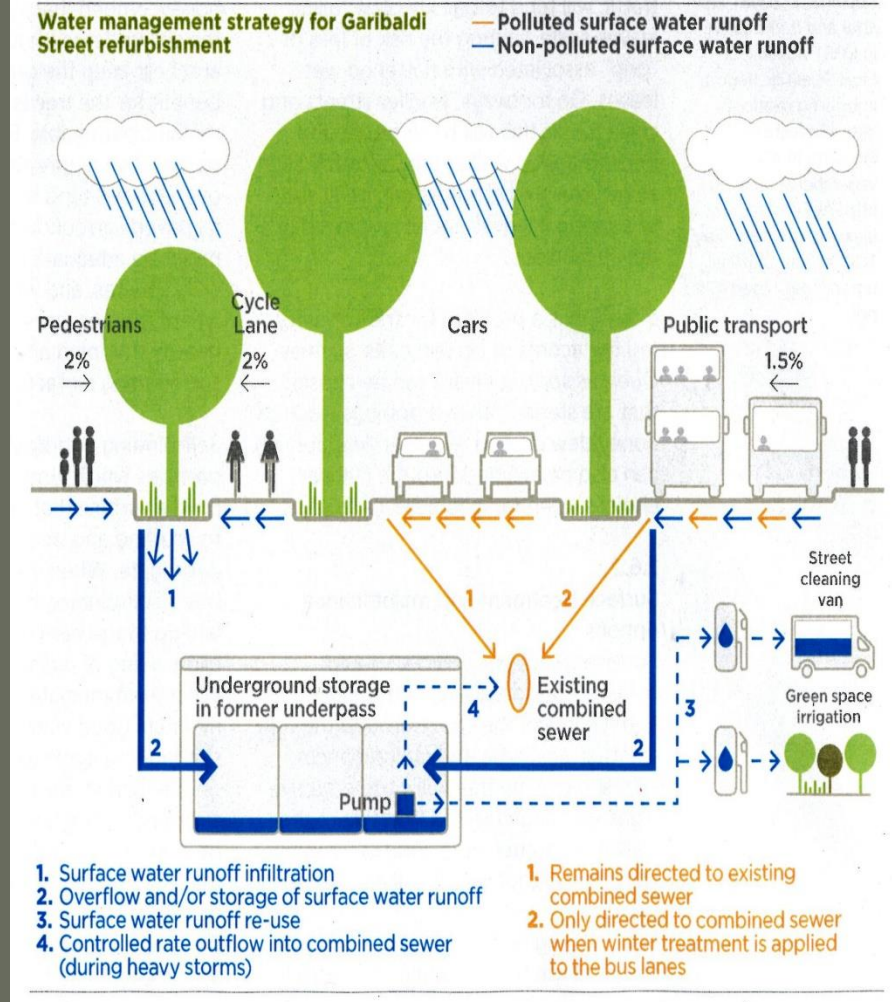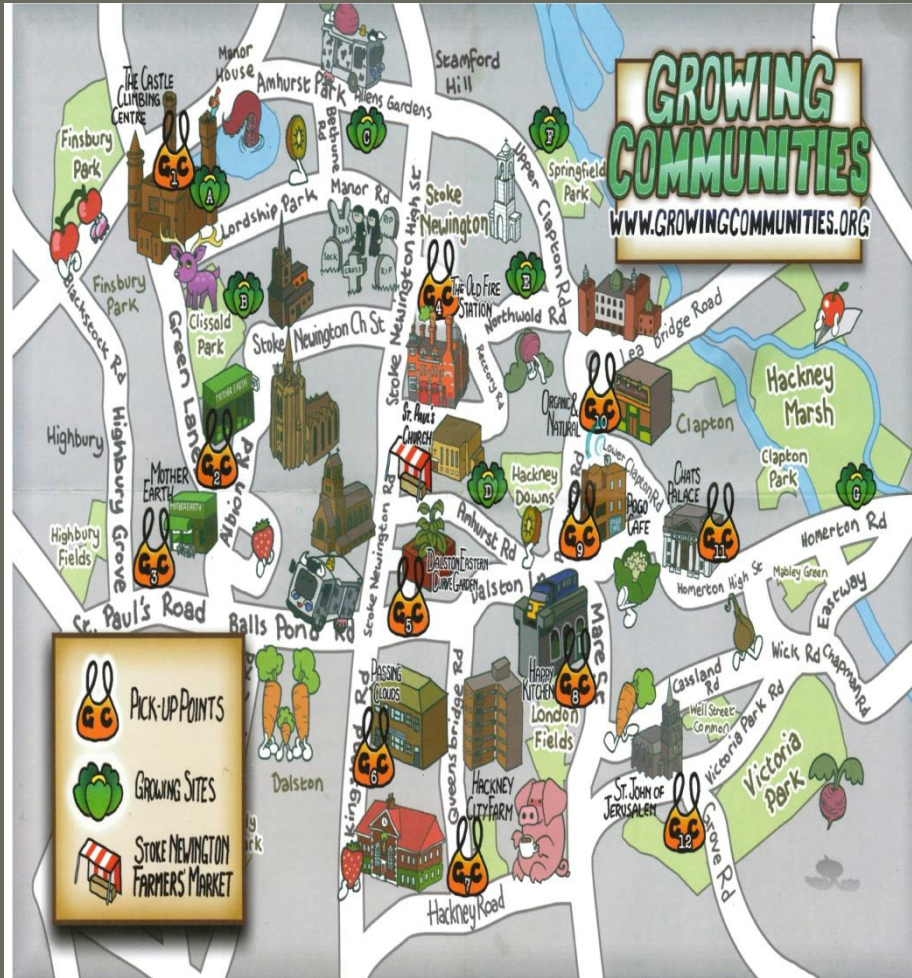
Wide urban boulevards

New boulevard planting must allow for growth into the path of bus tracks and be planted to minimise future interference. Trunk centre at least 1.8m from kerb edge.

Clear Zone

Clear Zone

Street Furniture Zones

Trees should always be planted in the street furniture zone, and pay careful attention to potential growth

Leeds

Rain Gardens / WSUD...

Water management strategy for Garibaldi Street refurbishment

— Polluted surface water runoff
— Non-polluted surface water runoff

Pedestrians 2%

Cycle Lane 2%

Cars

Public transport 1.5%

Street cleaning van

Green space irrigation

Underground storage in former underpass

Existing combined sewer

Pump

1. Surface water runoff infiltration
2. Overflow and/or storage of surface water runoff
3. Surface water runoff re-use
4. Controlled rate outflow into combined sewer (during heavy storms)

1. Remains directed to existing combined sewer
2. Only directed to combined sewer when winter treatment is applied to the bus lanes

Orchards / Production...

Working with local people…

What do we need to improve to deliver viable urban forestry futures?

- **Better communications**

- Better design

- Better delivery

- Better understanding of the non- monetary evaluation of urban trees…

A clever way of selling the urban forest…

- "Imagine someone were to invent an item of street furniture which improved air quality, reduced the costs of storm water management, reduced crime, slowed traffic speeds and improved physical and mental health – to name but a few.

- From the day of installation, this equipment would deliver more and more benefits, increasing rather than decreasing in value for a lifespan of decades or even centuries.

- And then imagine that this street furniture could be purchased and installed for just a few hundred pounds per unit, required relatively little maintenance and looked beautiful. The person who patented such a thing would be a wealthy one indeed."

- *John Parker, Chair LTOA addressing Member of Parliament July 2017.*

What do we need to consider to deliver viable urban forestry futures?

- Better communications

- **Better design**

- Better delivery

- Better understanding of the non- monetary evaluation of urban trees…

Do we sometimes over design?

Canary Wharf, London

What do we need to consider to deliver viable urban forestry futures?

- Better communications

- Better design

- **Better delivery**

- Better understanding of the non- monetary evaluation of urban trees…

- Last planting season, only 1420 ha of woodland was planted by the Forestry Commission of the 5000 ha that the Government had provided funds for. Why?

- In spite of the rhetoric, most towns and cities are losing tree canopy cover – Sheffield is not alone.

Sheffield's approach to urban trees…

What do we need to consider to deliver viable urban forestry futures?

- Better communications

- Better design

- Better delivery

- **Better understanding of the non- monetary evaluation of urban trees… being a tree hugger is a compliment, not an insult…**

Trees in the Townscape
A Guide for Decision Makers

Trees & Design Action Group

Trees in Hard Landscapes
A Guide for Delivery

Trees & Design Action Group

THE CHARTERED INSTITUTION OF HIGHWAYS & TRANSPORTATION

CIBSE

Institute of Chartered Foresters

ice
Institution of Civil Engineers

Species Selection for Green Infrastructure

A Guide for Specifiers

Trees & Design Action Group
Award-Winning Guidance Documents

SPONSOR LOGO

SPONSOR LOGO

SPONSOR LOGO

Draft Version 29.06.2017

Details on 280 species – available from www.tdag.org.uk

Acer campestre
(Field maple)

Use-potential

Tree size and crown characteristics

15-25M — Mature height is typically <15 m but exceptionally may reach 20m.

Natural crown form is typically globular. Some cultivars provide alternative forms.

Forms a dense crown.

Natural habitat

Occurs naturally in most of continental Europe (except Nordic countries) and parts of western Asia and north Africa. Can be found as an understorey tree, woodland edge species as well as an open grown tree on lower hillsides, plains, steppes (margins) and riverbanks. It commonly grows as a shrub in thickets. Prefers neutral to alkaline soils.

Environmental Tolerance

Moderately tolerant to shade.

Moderately tolerant to drought.

Moderately sensitive to waterlogging.

Ornamental qualities

LATE SPRING — Light green flowers borne in upright clusters in late spring. Fairly inconspicuous.

LATE SUMMER — Samara fruits maturing in late summer.

Deciduous broadleaf tree. Simple, five-lobed leaves that turn a golden colour in autumn.

Single stemmed or as a multi-stemmed shrub with a grey-brown corky bark, vertically fissured on mature stems.

Issues to be aware of

Few problems associated with the species.

Notable varieties

Natural form	'Elsrijk'.
Narrow crown	'Baronne', 'Green column'.
Add text	Add text
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Add text	Add text

Notes: Add text acerferunt, optaturemqui omnissus. Alitaqui to ma alicienia audigen imuscillauda quatibus, nost volestia quamust otatiam et dolestrum as mi, sunt lab imporatiis acimi, odipici atecta cuscietus, optasse eum laborei cienditibus, si se sum eaque late.

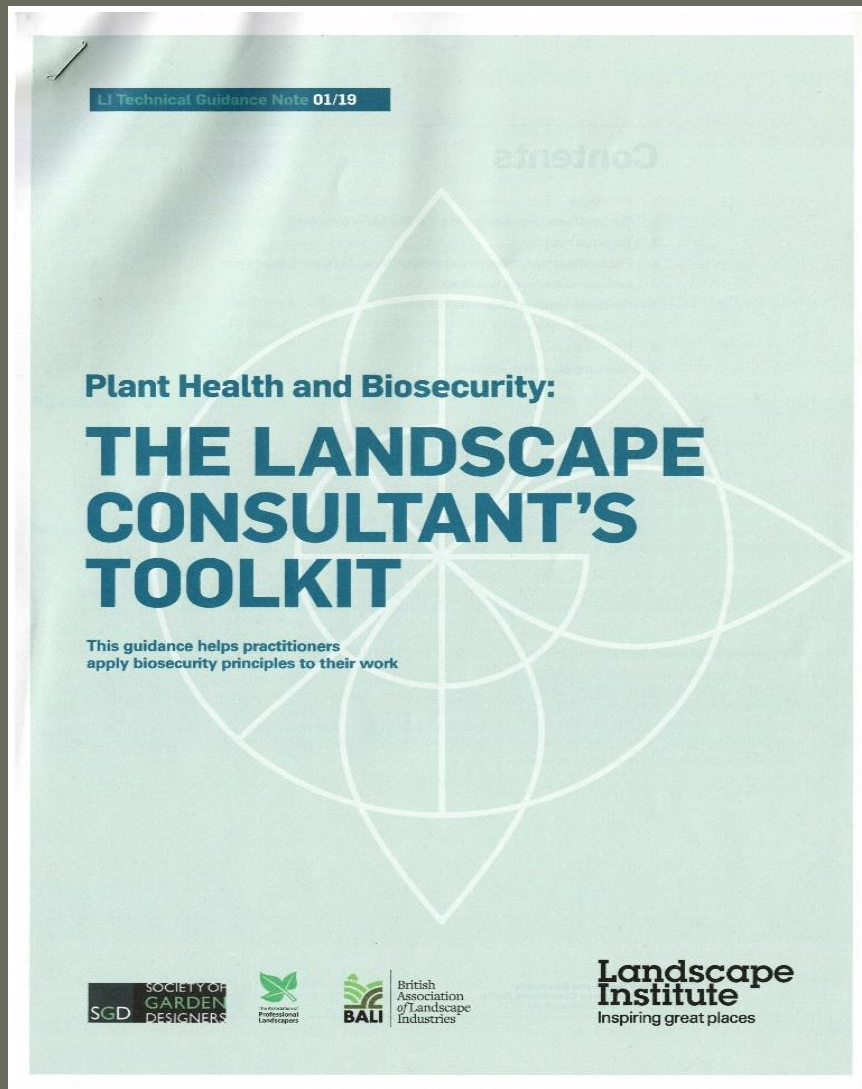**Example of planting**
Acer campestre tree Westonbirt.jpg

Visual interest
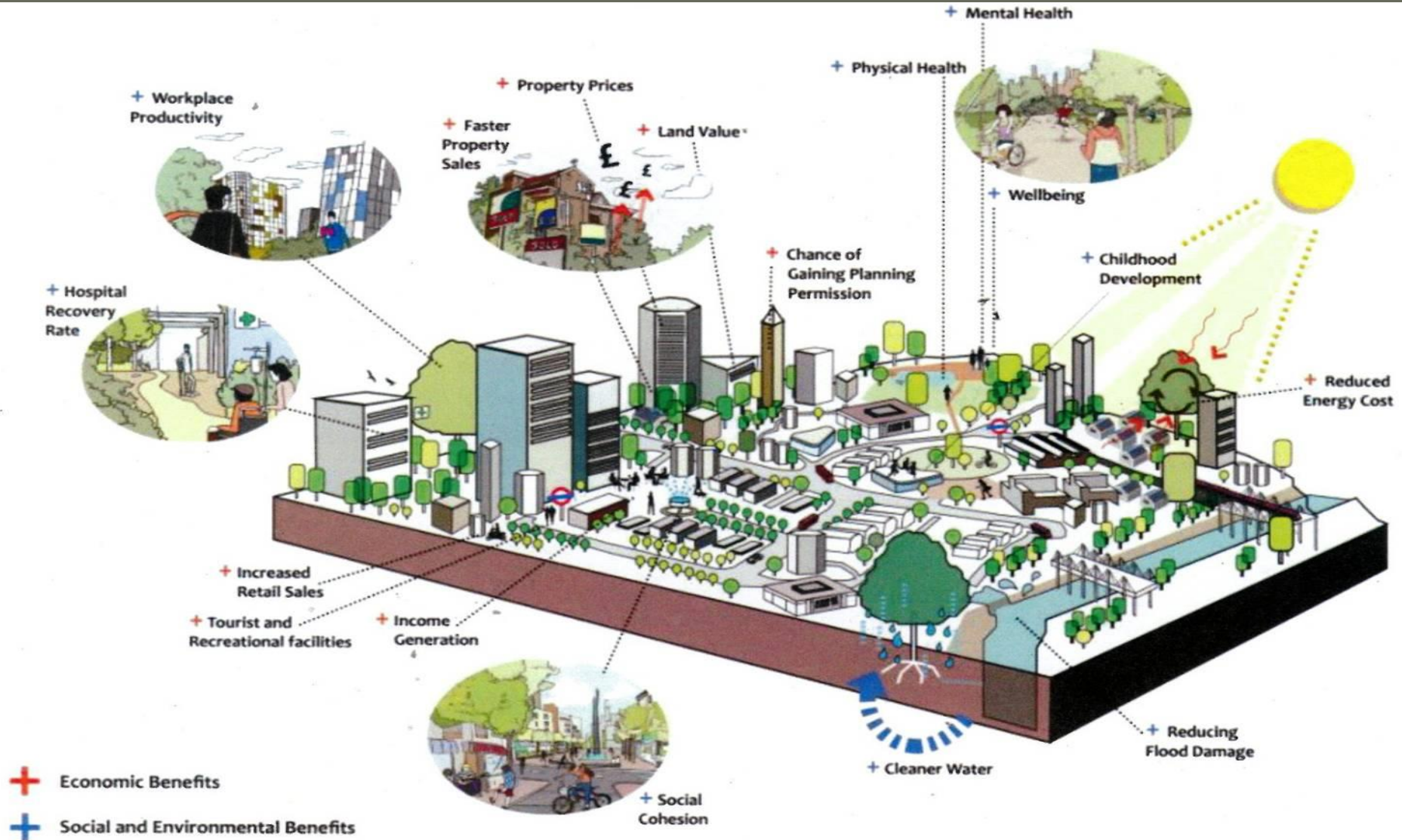Acer campestre leaves Westonbirt.jpg

© Image provider, used with permission

Understanding the issues surrounding Biosecurity is CRITICAL…

- www.landscapeinstitute.org

The benefits of the urban forest…

- "Not everything that counts can be counted, and not everything that's counted counts." Einstein.

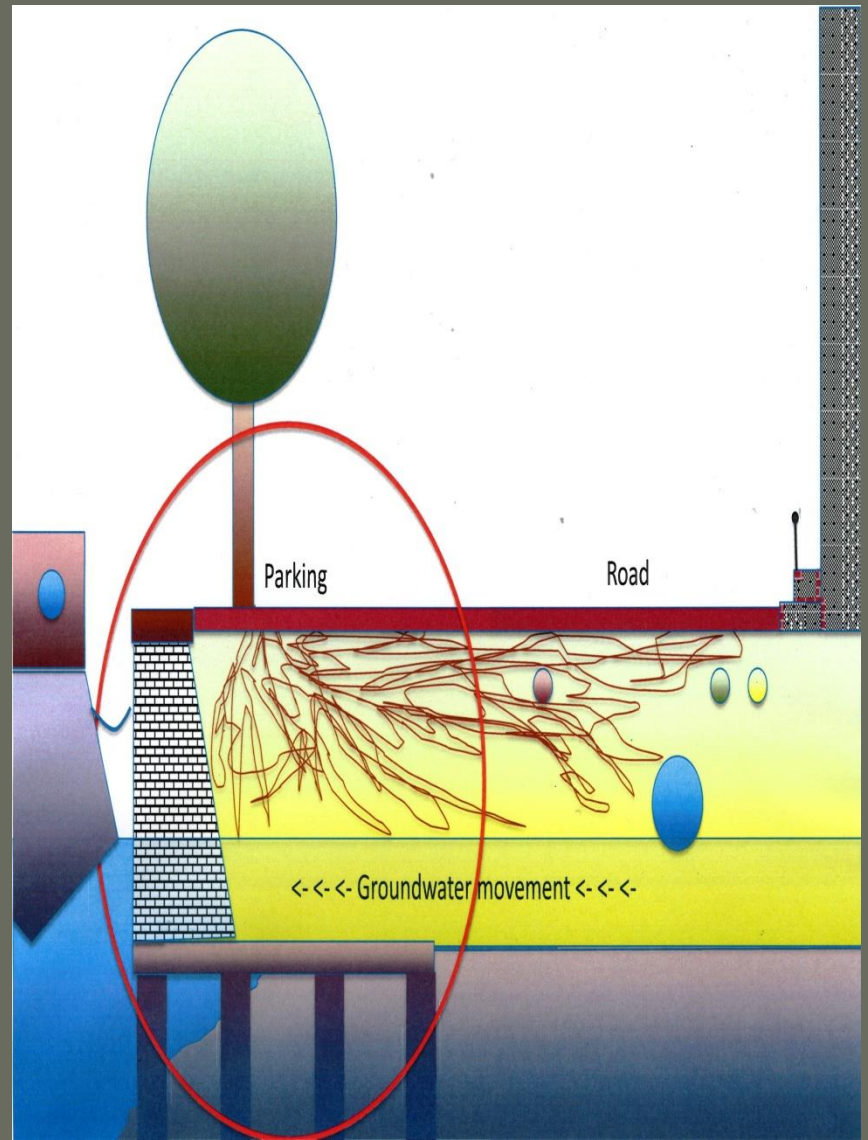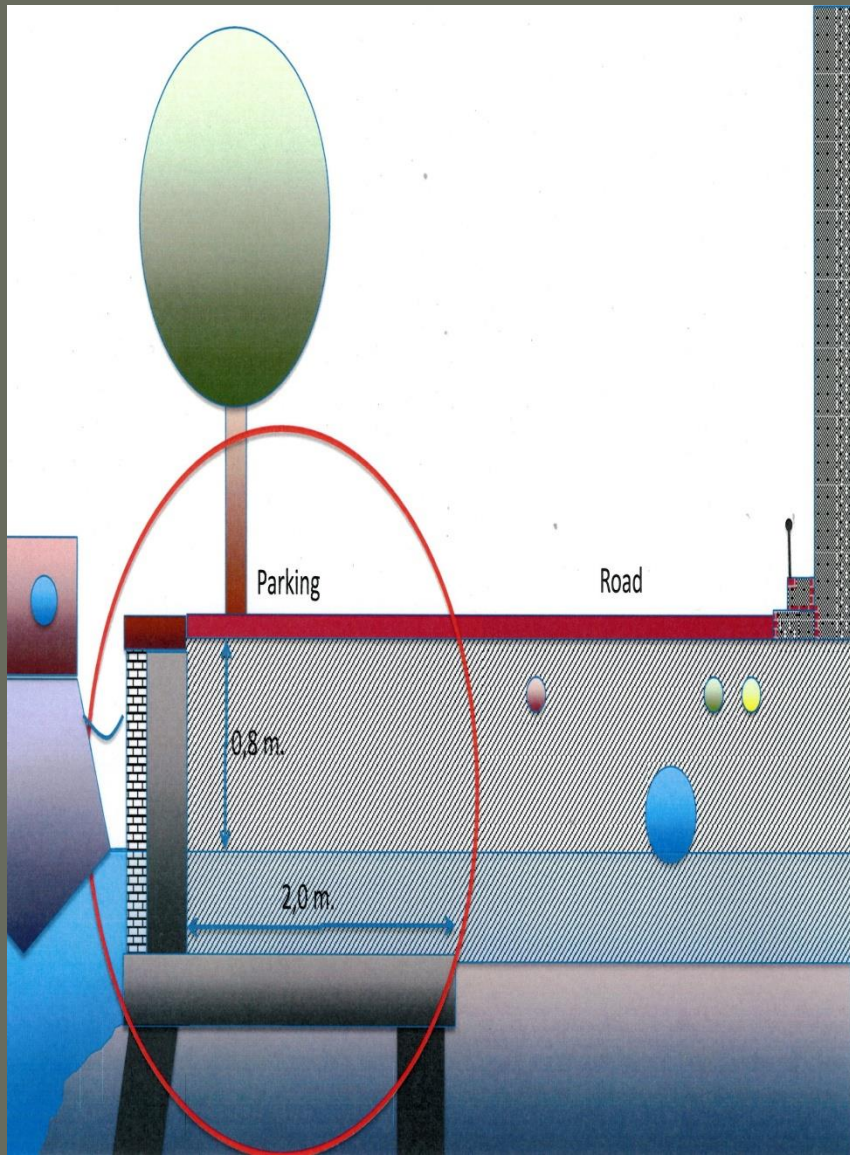- **What can we learn from elsewhere?**

LONDON

BIRMINGHAM

AMSTERDAM

Parking   Road

0,8 m.

2,0 m.

Parking   Road

<- <- <- Groundwater movement <- <- <-

COPENHAGEN

BARCELONA

FLORENCE

MALMO

VANCOUVER

Carrall St

Carrall St

LEAGU

GUANG ZHOU

Zhuhai…
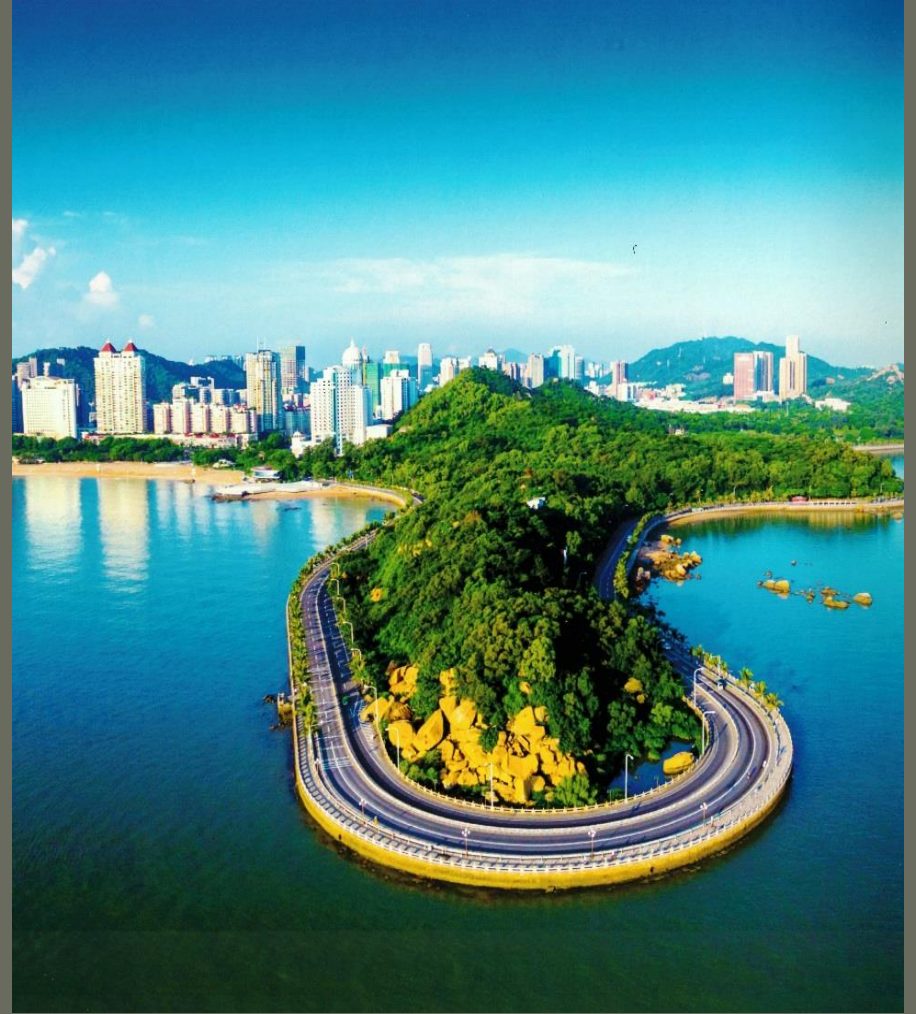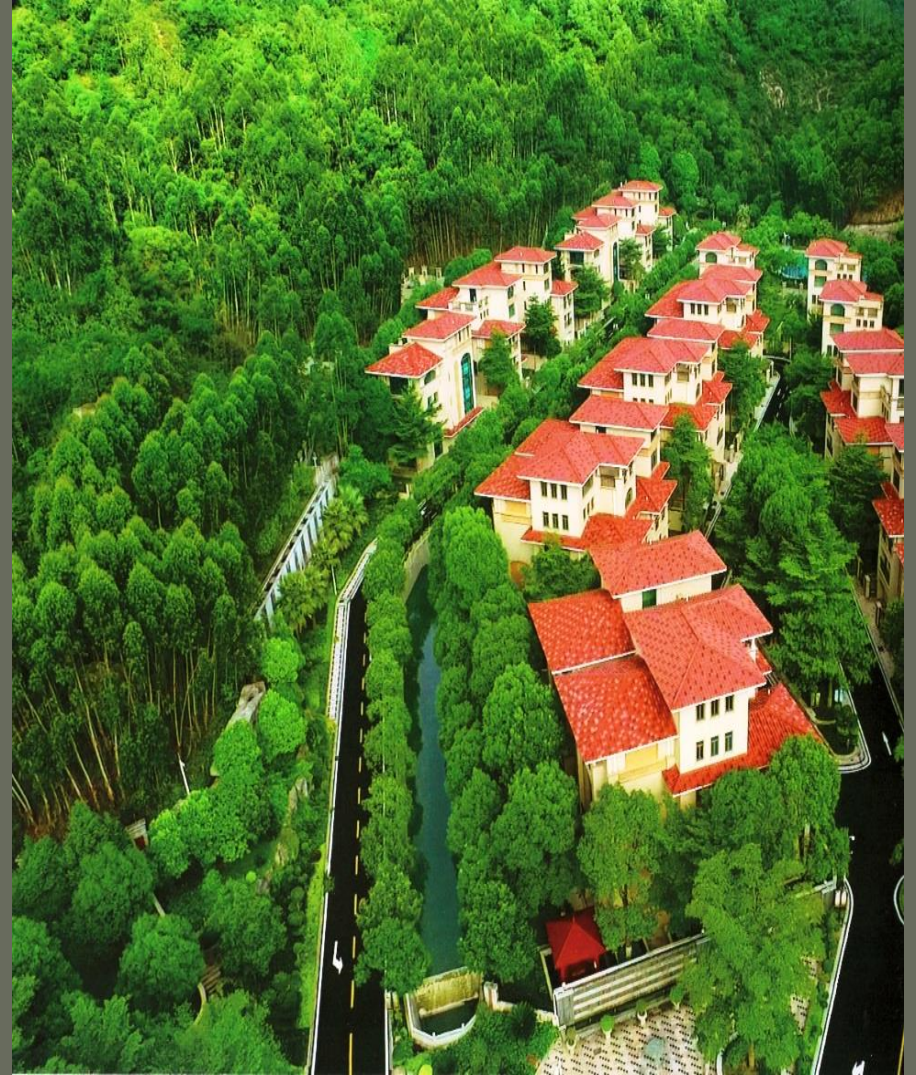
BUT, out of the visitor's eye…

Getting Better - Peri-Urban Beijing
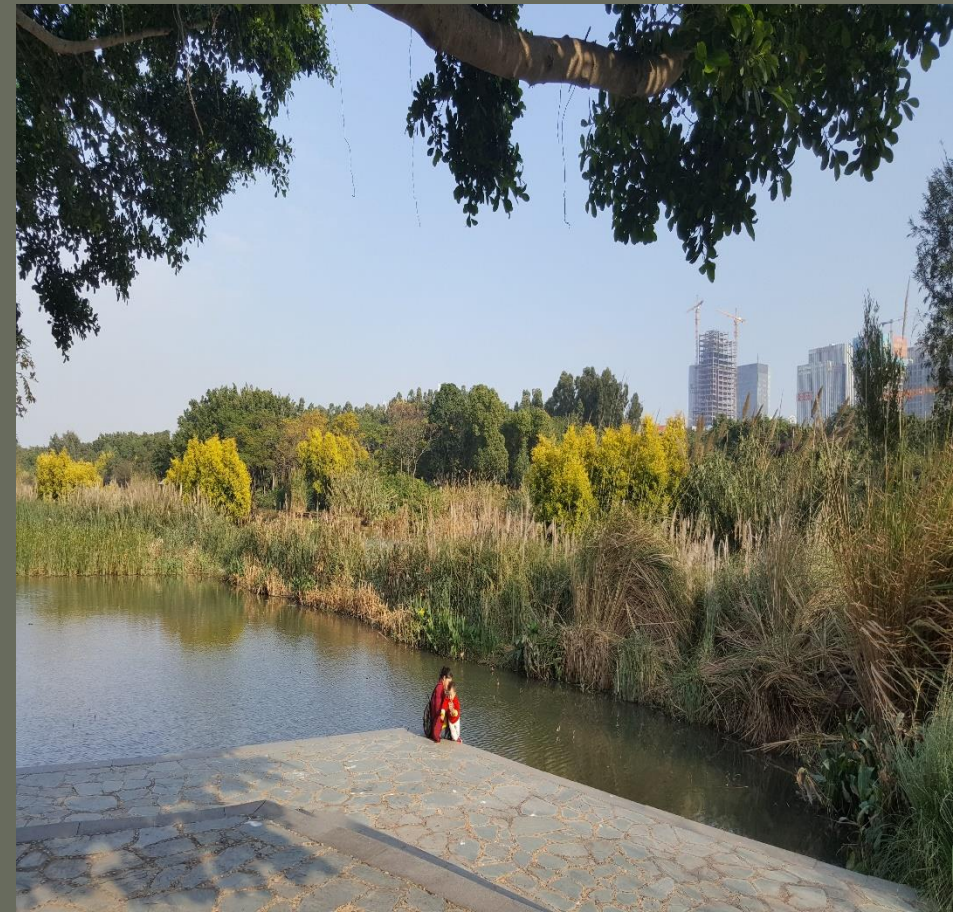
A take home thought for the day…

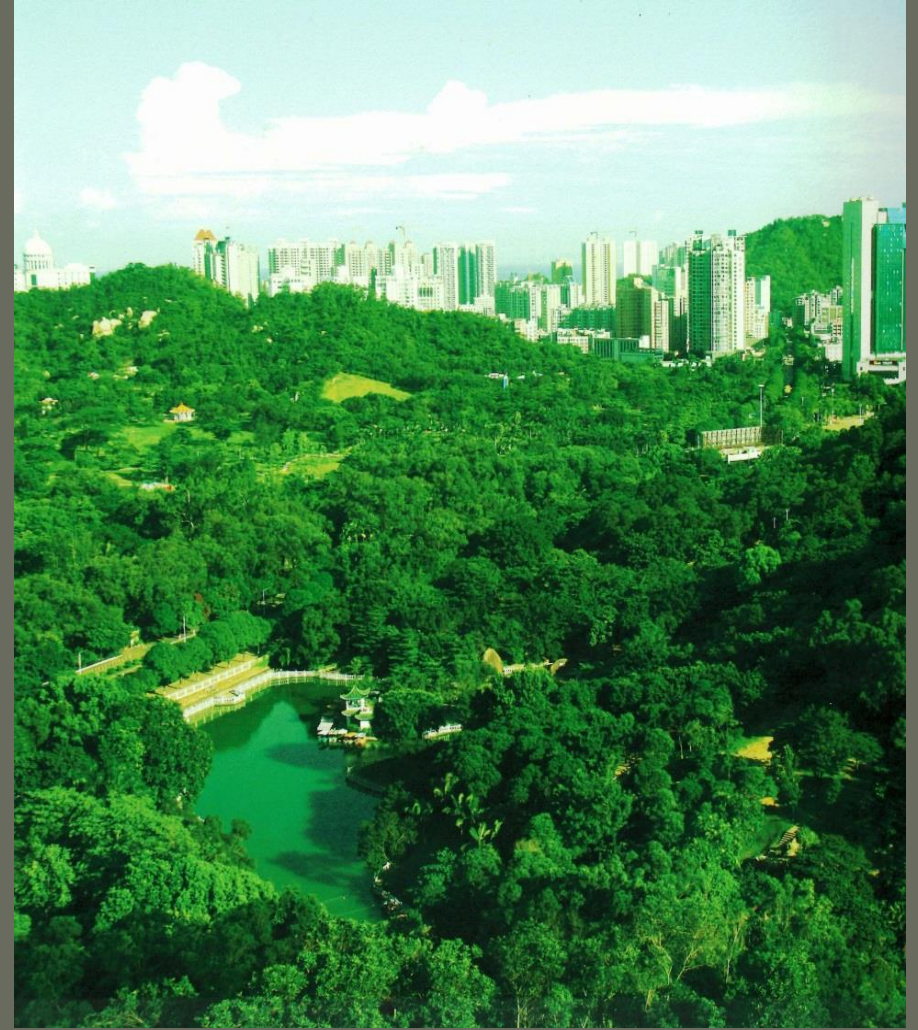- Humans have had a long, deep, cultural relationship with their trees, their woodlands and their landscapes - a relationship that transcends national cultures, and which sits as an equal alongside our scientific, economic, ecological and spiritual relationships…

- Do we need to re-kindle this relationship as part of our Urban Forestry Design for our Urban Futures to be happy, healthy, creative and successful?

- **Urban Forestry is positive and optimistic about out urban futures –**

- **'If we can design our way into difficulty, we can design our way out'**

Thackara (2005)

We need to design a 'Responsive' Urban Forest…

- This will allow and encourage people to revive their spiritual relationships with the urban forest…

- And will involve designing the urban forest better, so that people can make choices…

The Responsive Design of the urban forest will affect the choices people can make there. For example, it will affect…

- where people can go and where they cannot – **PERMEABILITY**

- the range of uses available to people – **VARIETY**

- how easily people can understand what opportunities are on offer in their urban forest– **LEGIBILITY**

- the degree to which people can use a given place for different purposes – **ROBUSTNESS**

- whether the detailed appearance of the place makes people aware of the choices available to them – **VISUAL APPROPRIATENESS**

- People's choice of sensory experiences – **RICHNESS**

- The extent to which people can put their own stamp on their urban forest - **PERSONALISATION**

The seven themes of Responsive Design…

- Permeability
- Variety
- Legibility
- Robustness
- Visual Appropriateness
- Richness
- Personalisation

As people involved in the future of Urban Forestry, we should remember that…

…the future is not some place we are going to, but one we are creating;

…the paths are not to be found but made, and the activity of making them changes both the makers and the destinations;

Key Future Events that will progress the concept of Urban Forestry…

IUFRO WORLD CONGRESS

Curitiba – the first sustainable city?

FUTUREBUILD 2020 – big urban forestry input…

The future is now

THEME: GROWING GREEN CITIES

The Earth has seven billion inhabitants and growing, and more than fifty percent live in cities. By 2050, this percentage will have increased to nearly seventy percent. With continued and relentless urbanisation, we have no option but to look for new ways to keep our cities safe, healthy and attractive and to find a better balance between 'grey' and 'green' infrastructure. We invite the world to join us and to contribute to our theme: Growing Green Cities.

EFUF 2020 – Manchester City of Trees

23rd European Forum on Urban Forestry
Urban Forestry for a Resilient Future
Manchester (UK) 19–22 May 2020

Over 50% of the people in the world now live in cities. City dwellers are exposed to a whole host of challenges and our urban forests will play an increasingly important role in helping to create places that are resilient to the threats posed by climate change, poor health and economic fluctuation.

Urban Forestry for a Resilient Future will explore the critical functions provided by our urban tree resource in making our cities resilient for the 21st Century and beyond.

For more information contact
EFUF2020@cityoftrees.org.uk | www.efuf2020.org.uk

Manchester City of Trees

European Forum on Urban Forestry

EFI

Sponsorship opportunities available

Global changes such as climate change, population growth and increasing urbanisation is putting unprecedented pressure on ecosystems across the globe.

Cities are at the sharp end of these pressures but are also the crucible in which solutions can be forged. Trees are silent witnesses to global change, yet whether they are in great forests or neighbourhood streets they perform life support functions at modest cost. To be resilient our cities need to foster many solutions and urban trees are a vital part of that mix.

In May 2020 EFUF addresses these hard questions directly in an international city synonymous with the industrial revolution that has fuelled progress and challenge in equal measures. EFUF 2020 is using the United Nations 2030 Agenda for Sustainable Development goals and the European Union's EKLIPSE framework to guide its conference themes.

Theme 1:

'Keeping cities cool and reducing flood risk' –

How our urban forests help to provide resilience, and what we can do to make them more adaptable to climate change and urban expansion.

Theme 2:

'The air we breathe, the water we drink and the way we feel' –

The role of the urban forest in meeting our basic life needs and addressing the challenges of physical and mental health.
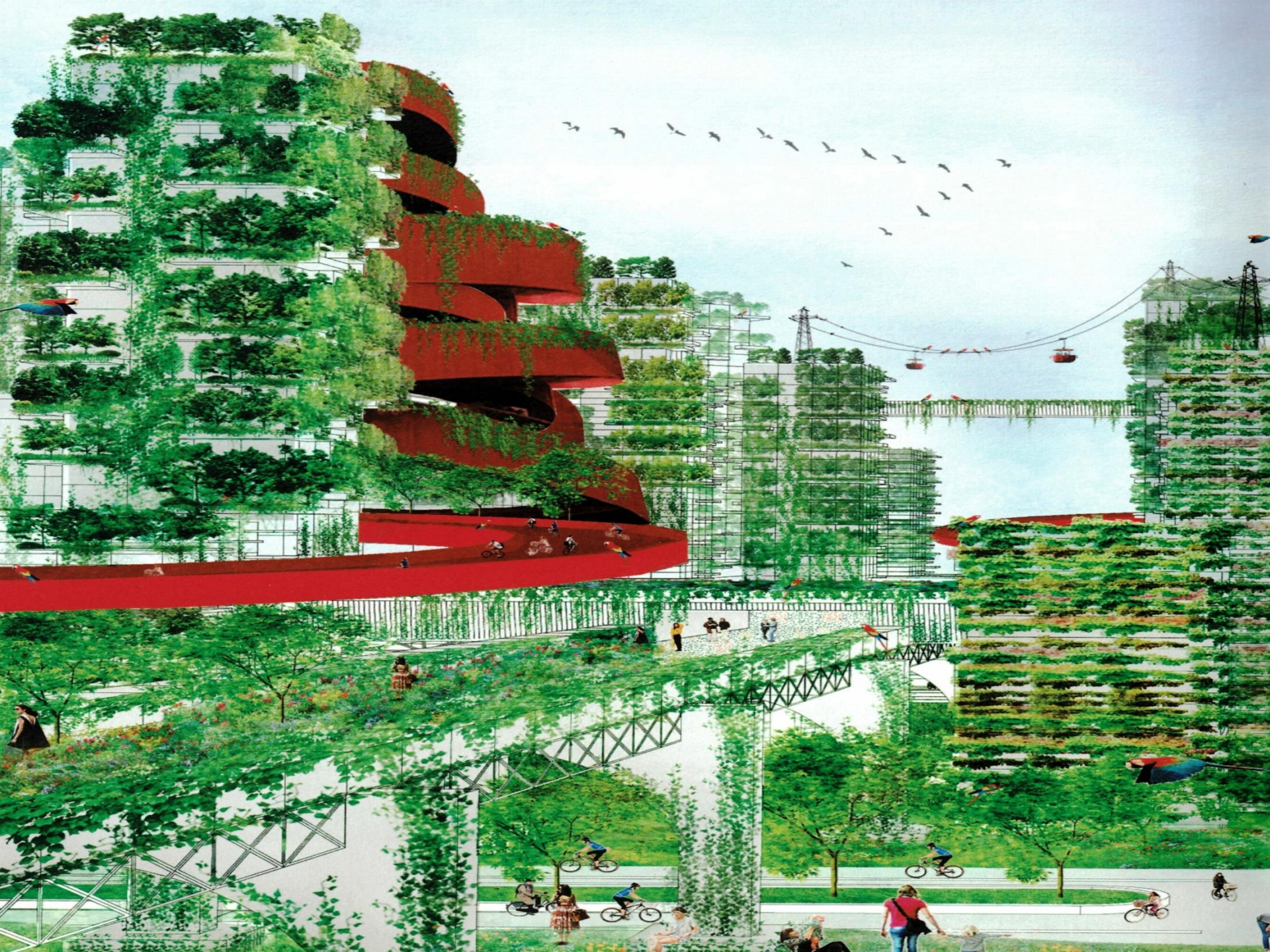
Theme 3:

'Trees and urban design' –

How trees and GI are integral to the development of our towns and cities in creating places where people want to live, work and play and how forest products can help to reduce our carbon footprint.

As well as the conference programme there will be an optional gala dinner and Saturday excursion

To conclude...

There are no more new frontiers – we have got to make it here…

- The world will continue to urbanise for decades to come. Villages will become towns, towns will become cities and cities will become mega-cities.

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- **Ensuring that these urban expanses are both liveable and sustainable is a massive challenge to which advocates and practitioners of urban forestry must rise.**

There are no more new frontiers – we have got to make it here…

- The world will continue to urbanise for decades to come. Villages will become towns, towns will become cities and cities will become mega-cities.

- Ensuring that these urban expanses are both liveable and sustainable is a massive challenge to which advocates and practitioners of urban forestry must rise.

- **Safeguarding and sustainably managing forests and other green spaces in cities will be crucial for the health and well-being of the planet and its inhabitants.**

- Trees in the Public Realm demand better trans-disciplinary design and landscape structure planning to significantly improve the quality of the resilience of our towns and cities by creating better and more viable urban habitats than now exist…**the FAO's Call for Action can choreograph this…**
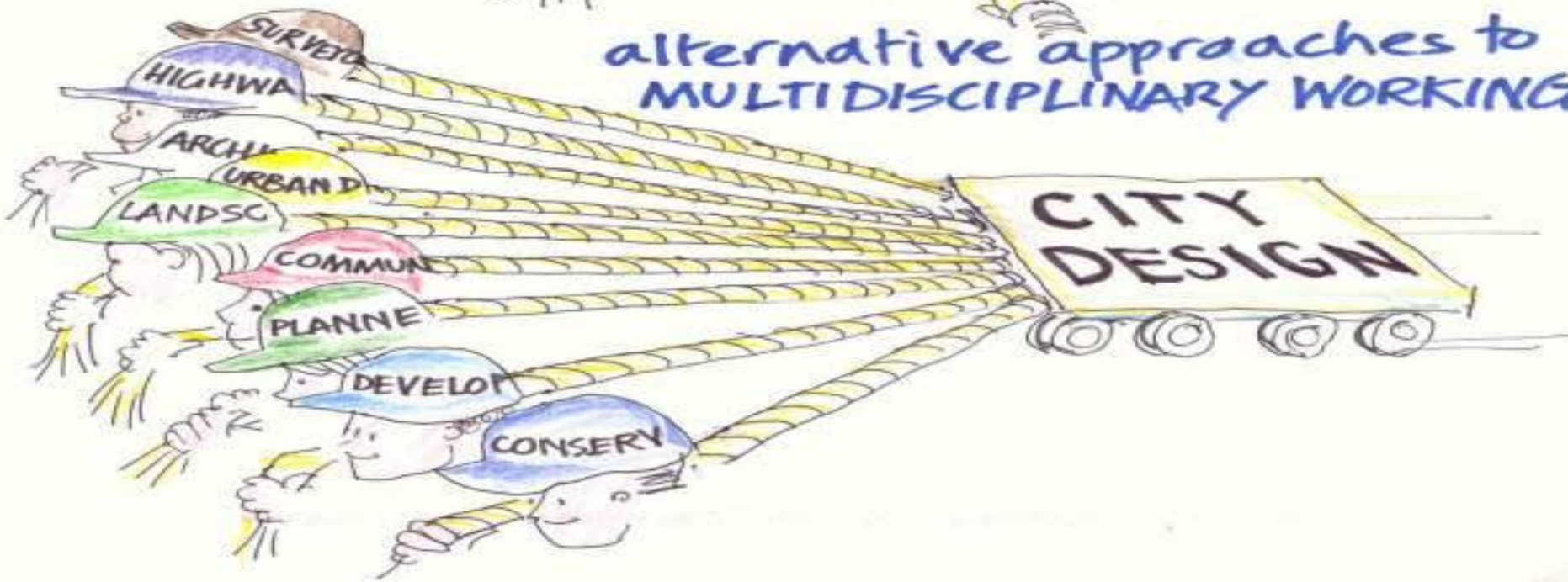
- **Urban Forestry Futures are bright, but we must wake up those who are pretending to be asleep – mainly politicians…**

alternative approaches to MULTIDISCIPLINARY WORKING

To increase urban tree cover, we have to be efficient and resourceful sales persons…

- to the public
- to the media
- to our fellow professionals
- to decision-makers, both international, national and local, and therefore…
- The quality of our tree planning, design, delivery and management has to be exemplary…

- This must be part of a belief in the value and importance of our plural, multi-cultural cities as a nucleus of our cultures, together with a more radical approach to post-industrial, resilient urban design and place-making **…and a much higher appreciation of the critical role played by urban forestry in gaining the trust of our multi-cultural, multi ethnic communities…**

The Urban Forest – at the heart of 22nd century living

- By 2119, it is only through trees that urban areas will function and support city populations.

- By then, climate change will have kicked in with a vengeance, with significant migrations from non-productive rural land to urban areas. Cities, previously consuming goods and services from a large hinterland, will have to become internally productive.

- Trees will be the centre of that, contributing to the city energy balance through cooling and woodfuel, regulating and cleaning our air and water flows, ensuring that our previously neglected urban soils function healthily

- Trees will have become the symbol of hope and life, as gathering spaces for community health and well-being and cultural discussion.

- This will reinvigorate interest in who governs trees in urban areas, with a creative forum at all scales – citywide to local streets and neighbourhoods.

- This will need significant change in how we recognise, value and make decisions about trees and nature more generally as we move forward to celebrate **the Future of Urban Forestry**. Yay!

Saluté!

Thank you for listening…