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Landscape structure planning and the urban forest in polycentric city regions

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Abstract. The World is continuing to urbanise at an increasing and some say alarming rate, and although urbanism is not uniform in all countries, without a doubt the 21st century is the century of the Polycentric City Region. By the year 2007, for the first time in history, the world hosted more urban dwellers than rural, and in order to deal with this urban expansion in an environmentally acceptable way, the concept of the "sustainable compact city" was advocated. There is now an increasing canon of research however that suggests that such cities may not be quite as sustainable as they are claimed to be. As a consequence, the concept of "urban green infrastructure", which includes the concept of urban forestry, is being incorporated into new thinking on the landscape structure planning of expanding cities and city regions to ensure that they provide an acceptable quality of life for their inhabitants. The environmental, economic, social, health, well-being and cultural benefits that emanate from such an approach to promoting resilient landscape structure planning are considerable. Such an approach to landscape structure planning is well-able to repair the beneficial relationship that people once had with their landscapes, a relationship that has arguably suffered as our scientific and economic cultures have tended to gain the upper hand in the post-industrial times in which we live. Human beings have had a long, deep, cultural relationship with trees, woodlands and the landscape – a relationship which transcends national cultures. The use of the term "landscape" does not refer to the rather shallow modern concept of 'the landscape as a view", but to the more fundamental concept of "landscape as the composition of our world". Thus it refers to both urban, peri-urban and rural areas, and the urban forest is the prime spatial articulator of a landscape structure plan. Although the words "forest" and "forestry" are now generally understood to be connected with trees, the words have arguably been derived from the Latin word "foris", meaning "out of doors" or "unenclosed land" (Porteous, 1928 p34). Thus urban forestry could be described as the "urban out of doors". This presentation will consider the benefits that can be achieved from developing a viable urban forest structure as the backbone of a polycentric city region landscape structure plan. It will focus upon the Leeds Polycentric City Region in the UK and its emerging *Leeds City Region Green and Blue Infrastructure Strategy 2017 - 2036* as a case study.

1 Introduction

The aim of this paper is to discuss the merits of re-establishing the concept of Landscape Structure Planning as a creative means of planning, designing, implementing and managing a viable approach to the expansion of our towns and cities into Poly-Centric City Regions. The World is continuing to urbanise at an increasing, and some would say alarming, rate. According to the United Nations (http://www.un.org/esa), only 14% of the world's human inhabitants lived in urban areas at the turn of the 20th century. As late as 1960, only one-third of the World's population resided in urban areas, and it wasn't until 2007 that, for the first time in history, the World hosted more urban dwellers than rural.

By 2025, this will have risen to two-thirds, and it has been predicted that 60% of the urban areas that will exist in 2030 have yet to be built (EEA, 2016). Much thought will need to be given to exactly what sort of urban futures we should be pursuing. The widespread growth in many countries of car-dependant suburban neighbourhoods has brought unsustainable energy waste and pollution levels, as well as lengthy commuting between homes and workplaces. That said, the success of such suburban housing reveals a growing public dis-satisfaction with the air pollution and hard landscapes of the large city centres, and a desire to live in a greener and more peaceful environment, and for a better contact with nature and natural processes.

2 The rationale

Our towns and cities will continue to be subject to constant change, and no urban area is likely to be immune from the forces that bring this about. Indeed, as the 21st century progresses, it is likely that this pace of change will accelerate considerably, and places that were once prosperous may slip into decay and physically, commercially or visually decline, whilst other areas that are currently deemed to be poor or run-down may well benefit from regeneration or revival. The reasons for this state of affairs are many and varied of course, and paradoxically can have as much to do with the "image" of an area – either real, imagined or invented – as with physical re or de-generation. (Shaw & Robinson, 1998). Such urban areas will be different however - urbanism is not uniform in all countries. Although there is still pressure to continue aiming for and developing "sustainable compact cities", there is a growing canon of research that suggests that there might be a finite size for such cities, and that if this is exceeded, they are perhaps not quite as sustainable as they might be, particularly in terms of human health and well-being (NEUMAN, 2005). It might be more viable therefore to plan for and include a number of such cities into a Polycentric City Region.

Change is inevitable, but shaping that change has to be founded upon positive and creative ideas, so as to secure better outcomes for our urban futures. Polycentric City Regions are complex environments. They exhibit both common and unique features that can influence their success or failure, aspects such as the state of the local economy, city identity, social cohesion and safety, green, blue and grey infrastructures and the subsequent health and well-being of their residents. There is no such things as a static polycentric region – they are either on the way up or on the way down.

For polycentric cities to succeed and flourish in the 21st century, they need to be able to attract and retain the best, brightest and most creative of the up-and-coming generations. Thus, there is no creativity in "business as usual", and this presentation will consider what contributions urban forestry can make in promoting the public realm of the city region - the usable and special spaces that can be accessed by as many people as possible. Such spaces are the lifeblood of cities, and the contributions that the macro and micro urban forest make in articulating these spaces is increasingly being recognised. We are now able to engage in "evidence-based design", defined as an approach to design that emphasises that we now have the credible evidence required to support the promotion of urban forestry as one of the critical key elements of the successful polycentric city region of the future (Simson & Ostoić, 2016)

3 Case Study: The Leeds City Region

The Leeds City Region sits at the centre of a current UK Government initiative called the "Northern Powerhouse". It comprises 10 District Local Government Authorities, covers an area of over 5000 km², has a population of over 3 million people, a £63 billion economic output and is the largest Local Enterprise Partnership [LEP] outside London. Like many towns and cities in the UK however, the City Region deindustrialised long ago, and although it currently has a diverse and service-orientated economy and a larger manufacturing base than many contemporary UK city regions, it badly needs to attract and retain modern knowledge-intensive business services for its future economic success (Cox, et al, 2016)

Thus the Leeds City Region [LCR] has developed a Green and Blue Infrastructure Strategy 2017-2036, which includes an Urban Forestry Plan, that is wholly integrated with the LCR's Strategic Economic Plan 2017-2036, and which together will deliver their collective vision of "good growth", which combines improvements in economic productivity and output, with social inclusion and a quality environment. Such long-term planning will require a series of larger-than-local Landscape Structure

Plans to graphically articulate the vision, and establish the need, the scale, the role, the purpose and the broad locations of the components of the Green and Blue Strategy Plan.

The provable benefits of such a green and blue infrastructure extend far beyond the intrinsic pleasures of an attractive environment. They include supporting good mental and physical health by improving the experiential quality of commuting, and tackling obesity and diabetes by increasing quality footpaths and cycleways; reducing the frequency and severity of flooding along the City Region rivers; bringing diverse and multi-ethnic communities together; regenerating areas of need; aiding biodiversity and providing a home for wildlife; acting on climate change and enriching human lives. Fundamentally, the Green and Blue Infrastructure Strategy will support a strong and resilient economy. It enables and adds value to new developments, attracts tourism and investment, supports businesses, jobs and training and ensures the resilience of the City Region's assets and its integrated infrastructure. Such a Landscape Structure Plan has the acumen to meld the urban "critical infrastructure" (ie. energy, food, water, transport, etc) with the emerging "urban green infrastructure" (ie. ecological security, multi-functional green spaces, resilience, etc.) into a viable "Integrated Infrastructure", the vital backbone of a Landscape Structure Plan. This will help to deliver its vision for "good growth", which combines improvements in economic activity and output with social inclusion and a quality environment for all.

4 Conclusions

It is known that the pace of urbanisation across the world will accelerate as Polycentric City Regions respond to change – changes in their population, in their economies, in their ethnic compositions, climate change and in their people's expectations and demands of the places they inhabit (Brotchie et al, 1995). The planning and design of the urban landscapes of the late 20th and early 21st centuries has all too often not created the quality liveable places that their designers claimed they would. Thus urban design, landscape design and urban green infrastructures are at a crossroads in many countries, as the concept of globalism increases apace, post-industrialisation takes hold and the quality of city centre urban life continues to decline as a result. Thus many cities continue to expand, often with standardised, low-quality developments, which encourages those citizens who have the available resources and opportunities to seek safer, greener, more pleasant edge–of-town surroundings to inhabit, where there is an appreciably higher canopy cover of trees. Urban resilience is increasingly compromised as a result.

Shaping these changes so as to secure better outcomes for urban futures requires us to be confident and brave, and to seek to improve the ways in which we invest in our landscape structure planning, including our multi-functional green infrastructure and urban forestry, to support resilient new settlements and regenerate existing communities.

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