

Nature based solutions for our cities

National Planning Framework needs to focus on the importance of nature-based solutions for urban areas



by Dara Carroll

THE GROWTH of Dublin at the expense of rural Ireland is a familiar refrain, amplified in post-crash Ireland. While it is true that Ireland has a particularly unbalanced economic and population growth pattern focused on its capital city, increased urbanisation is a global trend. Along with pressure on housing, this urbanisation poses a range of environmental challenges for cities that directly affects the health and wellbeing of inhabitants, as well as biodiversity. These environmental pressures are exacerbated by climate change, with more frequent flooding events and (possibly less obviously in this country) urban heat island effects. Increasingly policy-makers and communities are looking to what are termed ‘nature-based solutions’, actions copied or inspired by nature, to address these challenges and to help citizens re-connect with the natural world.

Depending on calculations, about 60% of Irish people live in urban areas and this is only projected to increase. It is still relatively low relative to the European average of 73% which is projected to increase to 82% by 2050. Globally, over 3.5 billion people live in urban areas. This accounts for over 75% of global energy consumption and 80% of global CO₂ emissions.

The environmental impacts of urban development are linked to the population and wealth of a city and hence consumption levels and consequent demands on natural resources. The ecological footprint or impact of a community on natural resources and ecosystems is therefore greater with larger and wealthier populations. However, while cities concentrate negative environmental impacts, their very densities of population and consumption offer opportunities for sustainable development through innovations in land-use planning, transport and building design.

The ‘greening’ of cities, or more specifically the (re)introduction of nature into towns and cities is one such opportunity to reduce environmental impacts and to promote more sustainable development. Having a greener city as a means of improving the environment through parks, street trees, green roofs and walls - even



City ‘greening’: New York High Line

window boxes, seems obvious to most in some vague appreciation of its amenity value. Over the past twenty years an extensive body of research reveals the connection between public health, wellbeing and nature. Increased contact with nature is proven to have positive physical and mental effects, through mitigation of air pollution, increased physical activity and social interaction, and reduction in stress.

However, research also reflects concerns that urbanisation is quantitatively and qualitatively diminishing possibilities for human contact with nature. This may be particularly acute within often impoverished, inner-city neighbourhoods raising the issue of environmental justice. A 2016 study by UCD mapped greenery in Dublin city and highlighted stark disparities between areas, with the North East Inner City particularly lacking in greenery. There is good reason that the term ‘leafy suburbs’ tends to denote both a pleasant environment and wealth.

The idea of enhanced urban greening is not wholly new. The earliest interest in land conservation was a reaction to urban environmental conditions in the



Enhanced urban greening in Qatar



Sustainable urbanism: a project connecting communities with nature in Philadelphia



Green infrastructure: a street 'bioswale' (designed to concentrate or remove silt and pollution from surface runoff water)



nineteenth-century Industrial Revolution and the destruction of the natural environment. Nineteenth-century nature conservation came in the form of national parks and the protection of forests, rivers and wilderness, championed in the US by people like George Perkins Marsh who, in 1864, published 'Man and Nature' which castigated the destructive effects of human activity. Around this time, nature also began to be considered as a vehicle for urban planning and landscape development. The American author, poet, and naturalist Henry David Thoreau wrote that every town should have a park or primitive forest and Frederick Law Olmsted designed New York City's Central Park and Prospect Park in the 1860s. In the UK, the Garden City movement developed as a reaction to the squalor and degradations of Victorian, urban, industrialised Britain. Pioneered by Ebenezer Howard with the new town of Letchworth, it incorporated housing, a connection and balance with nature, and economic viability. Garden City design principles were incorporated in Dublin in the newly developed suburbs of Marino and Drimnagh.

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Green roof: Technical and Scientific Centre of Paris, designed by Jean Philippe Pargade



Green roof: ACROS Fukuoka International Hall in Japan



Vertical Garden: Pont Max Juvenal in Aix en Provence, designed by Patrick Blanc



Green infrastructure weaves together synergistically, promoting both ecosystem and human benefits to enhance the environmental, social and economic sustainability of the urban environment

urban environment.

Technical barriers to the implementation of greening policies include lack of space and extensive underground services in the inner city, however cities are proving that these can be overcome. Within local authorities, cross-departmental collaboration is required, as well as engagement with local communities and the private sector to promote implementation.

As the nexus of knowledge, infrastructure and governance, cities represent a key opportunity to stimulate larger-scale change towards green economies. Opportunities exist to sustain biodiversity in and around urban areas. Human health, child development and human appreciation of nature – and thus the conservation of nature everywhere – may depend on finding and implementing solutions to the dissociation of urban human forms from nature.

Policies and plans for the sustainable development can often be misunderstood, misinterpreted or simply ignored. At present there is only limited national guidance on the development of green infrastructure strategies or nature-based solutions as part of spatial planning. The new National Planning Framework should address such shortcomings, with a focus on the importance of nature-based solutions for urban areas and the role citizens can take in their planning and implementation. **■**

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Come the 1960s, Scottish landscape architect Ian McHarg promoted the concept of ecological planning for human settlement with his book ‘Design with Nature’. In this he divided the world into what was ‘fit’ and what wasn’t. Nature was deemed fit, whereas cities were seen as unfit or “scabrous entities”. In ‘The Granite Garden, Urban Nature and Human’ published in 1984, Anne Whiston Spirn explored how urban ecology can address environmental and social problems - such as water and air quality, the urban heat island, storm-water drainage, flooding, urban vegetation and wildlife – within the city itself.

The contemporary concept of Sustainable Urbanism and its offshoot Green Urbanism have evolved from these earlier movements and writings. It brings together the strands of environmentalism, New Urbanism, Smart Growth and innovations in building and infrastructural design and technologies. Sustainable urbanism seeks to connect people with nature and natural systems and in contradiction to McHarg’s beliefs, this can be achieved even in dense urban environments.

Local authorities in cities around the world are slowly beginning to embrace green urbanism,

with a particular focus on green infrastructure. Comhar, the defunct National Sustainability Forum, described green infrastructure as an interconnected network of green space that conserves natural ecosystem values and functions and provides associated benefits to human populations. Multi-functionality is at the core of the concept. ‘Ecosystem services’ that green infrastructure can deliver include clean air, temperature control and mitigation of the local ‘heat island effect’, recreation areas, flood protection, rainwater retention and flood prevention, maintenance of groundwater levels, and restoration or halt the loss of biodiversity. These are in addition to improving the health and quality of life of citizens through the provision of accessible and affordable areas for physical activity.

The multifunctional nature of green infrastructure means that the benefits accruing to it are not measured as just the sum of its constituent elements. Green infrastructure can be viewed as an approach rather than just a single entity. Its elements weave together synergistically, enabling the delivery of both ecosystem and human benefits in a way that enhances the environmental, social and economic sustainability of the