



Nature Discovery Park at Victoria Dockside showcases local plants with distinctive ecological value

HOUSING AND URBAN PLANNING IN HONG KONG: CONNECTING WITH BIOPHILIA, BIODIVERSITY AND WELLNESS

By Alexander (Sandy) M Duggie

One of the main challenges facing urban designers in Hong Kong is the need to promote the health, well-being and happiness of the citizens and create a truly liveable city. I believe that biophilia and biodiversity have important roles to play in addressing this challenge.

There is an extremely large body of scientific evidence citing the many and varied physical and mental health benefits of maintaining close connection with nature (see sidebar). Unfortunately, living in modern cities means we are becoming increasingly

disconnected from it. About 54 per cent of the world's population now live in cities and that is expected to rise to 70 per cent by 2030. Undoubtedly, cities are the most sustainable form of urban development, using the inherent efficiencies to reduce individual carbon footprints while raising overall living standards. Yet dense city living can cause a disconnect from the natural world, especially for the young. Consequently, there is an urgent need to adopt biophilic design in our urban planning to enable our citizens to reconnect with nature and experience all the associated health benefits.

THE RELATIONSHIP BETWEEN BIOPHILIA AND HUMAN HEALTH

The term biophilia was popularised by Harvard biologist E. O. Wilson in his book entitled *Biophilia*, published in 1984 by Harvard University Press. He defined it as the 'love of life or living systems' and 'the innate emotional affiliation of human beings to other living organisms. Innate means hereditary and hence part of ultimate human nature'. This atavistic or innate sense is something that has become hard-wired into humans by virtue of thousands of years learning to survive in the landscape. Biophilic design facilitates the reconnection of the urban population with nature and other living things.

There is a long history in many different aspects of human endeavour,

not least city planning, of the benefits to humans of interacting with nature, parks and open space, however most of the scientific research has been done in the past 40 years. One of the first to undertake evidence-based research into this topic was Dr Roger Ulrich, whose ground-breaking 1984 study showed in a scientifically rigorous way that natural features seen by patients through hospital windows helped speed up their recovery. Since then, many other studies have produced similar results. In 2010, Dr Kathleen Wolf catalogued no less than 2,800 articles researching the positive relationship between green space and human health.

In 2005, Richard Louv wrote a book

entitled *Last Child in the Woods*, published by Algonquin Books of Chapel Hills in 2008, where he gave evidence that a combination of factors gives rise to what he called Nature Deficit Disorder that may cause serious detrimental impact on children's mental and physical health as well as development. The factors include spending too much time indoors, in front of the TV and computer; giving too little access and freedom to explore nature; and over-protective parents. He described the human costs of alienation from nature, among them, as diminished use of the senses, attention difficulties and higher rates of physical and emotional illnesses.

So how do we adopt biophilic design to enable us to reconnect with nature? The solution has two components, which may be called the 'hardware' and 'software'. The hardware is how we plan, design and shape the city fabric to facilitate reconnection with nature. The software is how we organise our activities to further promote that reconnection.



The layered planting at Level 4 of Pacific Place

ADOPTING BIOPHILIC DESIGN FOR SOCIAL EQUITY

Dr Timothy Beatley is an urban planner who has authored several books on green urbanism in which he promotes biophilic design and provides an outline of the essential elements of a biophilic city¹. He proposes a nature connection pyramid, similar to a food pyramid, which identifies a diet of necessary exposure to nature on a daily, weekly, monthly and yearly basis. He identifies a biophilic city as one where planning and development decisions foster the restoration of nature and the reconnection of all citizens with nature for the benefit of every individual and society as a whole.

In fact, there is strong evidence that connection with nature provides health benefits that can level the playing field between rich and poor. Professor Richard Mitchell of Glasgow University, Scotland, has undertaken many years of research that suggests, convincingly, greener neighbourhoods actually reduce the health gap between rich and poor and lead to a better, more equal society². With Dr Frank Popham, he found that people who lived near parks and woodlands had lower levels of income-related health inequalities³. Using national mortality records from the United Kingdom's Office for National Statistics, alongside green space measurements, they paired low-income groups with varying levels of urban green space to see the effect on mortality rates. The rates of income-related mortality were much lower in areas with more green space. The paper concluded that it was possible for greener neighbourhoods to mitigate the negative effects of income deprivation on health. The potential benefits of nature connection seemed more powerful to the researchers for people who were from poorer backgrounds and under more stress. In 2015, another study⁴ led by Mitchell looked at over 20,000 people in 34 European countries and found that access to nature was the one characteristic that reduced socio-economic inequality in mental well-being—by as much as 40 per cent.

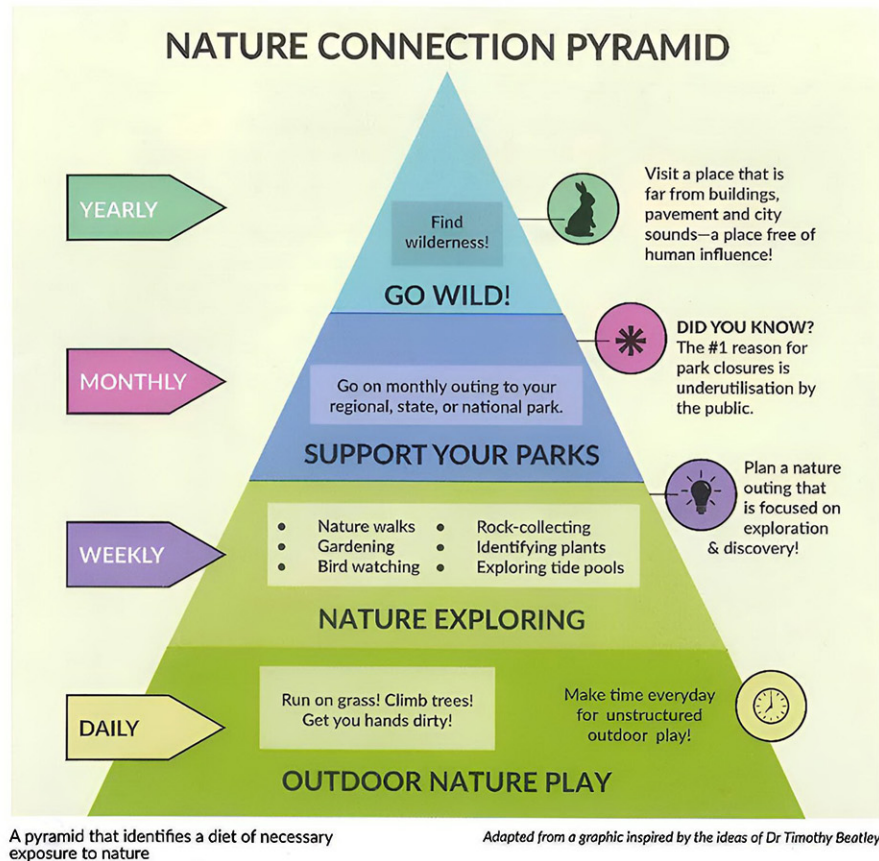
MITIGATION OF INCOME INEQUALITY IN HONG KONG

This has massive implications for urban planning everywhere, but especially in Hong Kong, given the huge disparity of incomes in the society and the need to provide public housing for those who cannot afford to buy their own homes.

Unfortunately, the wealth gap in Hong Kong has increased since the handover in 1997. Based on original monthly household income, Hong Kong's Gini coefficient⁵, an index on how evenly income is distributed, rose from 0.518 in 1996 to 0.539 in 2016, the latest data showed. A coefficient of 0.539 places Hong Kong as one of the most unequal societies in the world, something to be ashamed of, and which must be addressed by our leaders. But if urban designers can partially mitigate the adverse health and wellness impacts of this wealth disparity by facilitating (re)connection with nature, biophilic

design should be a fundamental facet of urban planning in Hong Kong, and especially in relation to public housing in which residents can get their 'daily dose' of health-giving nature in the biophilia pyramid.

I have no doubt that investment in biophilic design would improve the health and wellness of Hong Kong citizens. Such provision of life enhancing environments would also be in total harmony with the Government's recently published Primary Healthcare Blueprint⁶. In the Preface to the Blueprint, the Secretary for Health, Professor Lo Chung-mau, stated, "It has been well said that 'an ounce of prevention is worth a pound of cure'. The Government is committed to enhancing district-based primary healthcare services in a bid to shift the emphasis of the present healthcare system and changing people's mindset from treatment-oriented to prevention-oriented." Biophilic design of



Taikoo Square public open space will have 276 different plant species

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new developments can greatly assist in this wise prevention-oriented healthcare strategy on a city-wide basis.

NATURE-FRIENDLY HOUSING DEVELOPMENTS

Yet I think the Government is making some serious missteps. The current drive to identify sites for housing is targeting many areas zoned green belt that are precisely the areas that we should be preserving and augmenting if we hope to reconnect the populace with nature. Similarly, the controversial destruction of the Old Course at Fanling Golf Course, and the associated unique and irreplaceable landscape and ecology that is currently enjoyed by the local

community (not just golfers), would be a mistake and an act of environmental vandalism. There are ample brownfield sites and New Development Areas (NDAs) to meet our future housing needs if realistic population projections are adopted. The focus must, firstly, be on preserving, not destroying, nature in our existing country parks, green belts and sites with valuable ecology. Secondly, it will be on bringing nature into new developments.

Of course, the Government already has guidelines to promote greenery in new developments. For example, private developments with total area in the range of 0.1 to 2.0 hectares are required

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to reserve 20 per cent of the site area for greenery, and 30 per cent greenery for larger sites. The Development Bureau also provides similar guidelines for Government developments. In its latest 10-Year Supply Forecast of Developable Land (2023–24 to 2032–33), it targets about 3,280 hectares of developable land to be made available in the next 10 years, which would produce at least 652 hectares (20 per cent) of greenery area. In theory, this should provide ample opportunity to bring nature into new development. However, this potential has not been realised in the past because greenery does not necessarily equate to nature, and not all greenery provides food and habitat for the wildlife which also share this land. Why is this?

THE IMPORTANCE OF BIODIVERSITY TO URBAN PLANNING

The critical issue is biodiversity, or rather the distinct lack of it, in much of our urban greenery. The worldwide reduction in biodiversity that has generated warnings of an impending sixth extinction is a major crisis facing humanity and all creatures on the planet. The simple fact is that if we do not design our urban landscapes to promote biodiversity, we will have little chance in stimulating the population's interest in the landscape ecology around them. In other words, without creating biodiversity in the built landscape, we cannot hope to stimulate biophilia in the population that brings all the proven health benefits.

The problem derives, on one hand, from planting designs that feature too few plant species and, on the other, from planting maintenance

practices that actively discourage biodiversity through excessive pruning and excessive use of chemicals (which also have invidious long-term detrimental side effects on humans).

I visited a park in Tung Chung North recently. It covers about 1.5 hectares; yet I counted less than 10 plant species in the entire park and most of the shrub planting was monoculture (the ubiquitous exotic *Schefflera arboricola*, with almost zero ecological value) that had been pruned to exactly the same height. Such pruning removes all flowers and fruits, rendering plants useless for pollinating insects, hence no birds are attracted to feed on the insects or berries. There was certainly very little to stimulate any local residents' interest in the natural environment. The park was dull, boring and, to me, depressing because I know how much better it could and should be.

The same can be said for parts of Tamar Park on the Central Waterfront. Although the trees, which give shade, and large lawn sweeping down towards the waterfront are a wonderful resource for the public, the shrub planting in the park incorporates very few species and, like most other urban plantings in Hong Kong, suffers from excessive pruning that removes all visual interest and renders the planting virtually worthless as a source of food or habitat for wildlife.

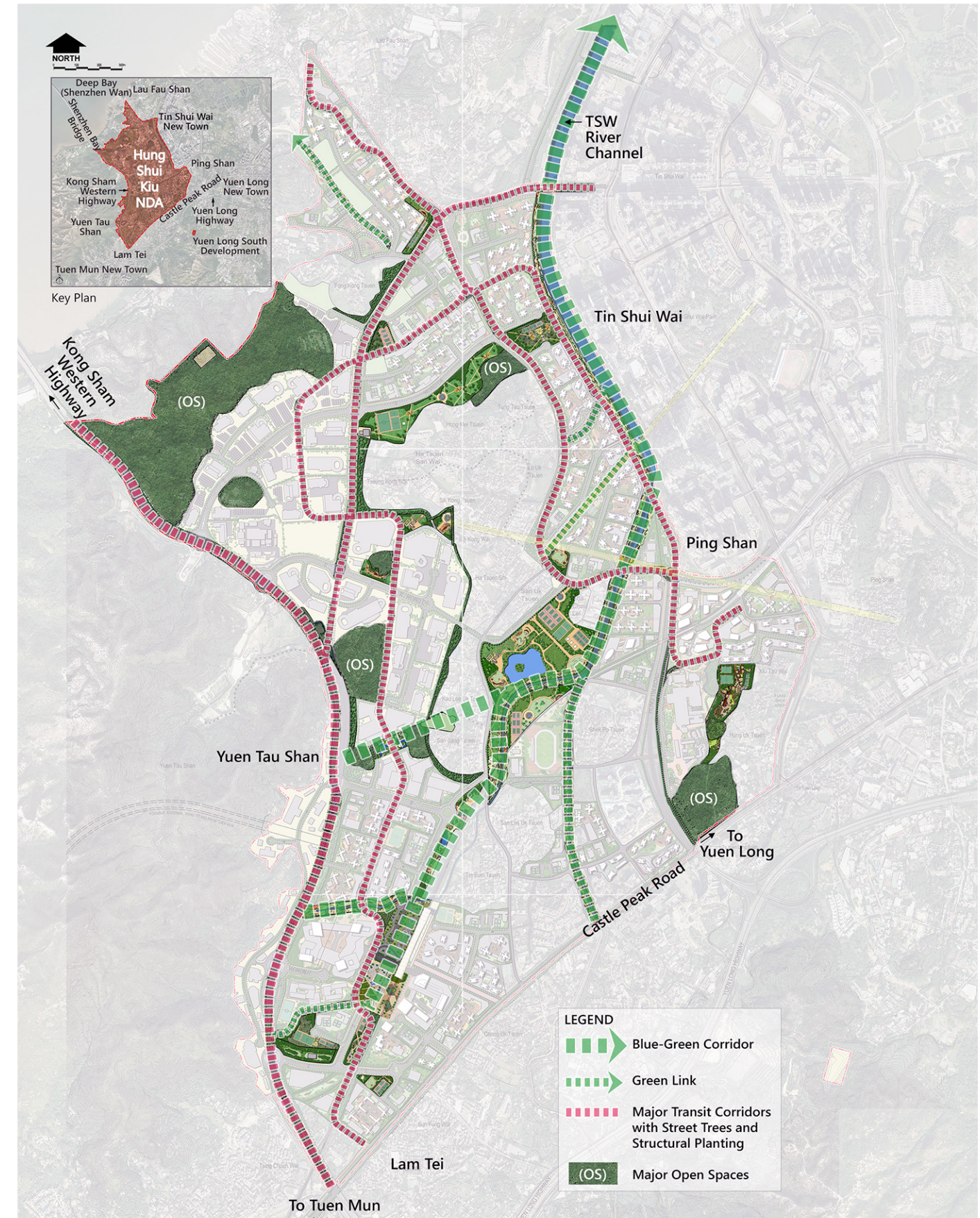
From a biodiversity standpoint, these two parks are green deserts. Unfortunately, this scene is repeated, ad nauseam, throughout Hong Kong, yet it could easily



Public open space in Tung Chung North



Tamar Park with poor vegetation biodiversity



An integrated green-blue network at Hung Shui Kiu, a new development area in Hong Kong

be so different and so much better for both wildlife and humans. The solution is in how we design (hardware) and manage (software) the urban landscape.

To plan and design the hardware necessary to promote biodiversity and thereby biophilia, we need to adopt basic ecological design principles at both strategic and detailed design levels. These include:


- Creating large scale blue-green corridors throughout urban areas to incorporate water bodies and physically connect with adjacent natural landscapes as far as practical, thus encouraging free movement of wildlife into and through the urban areas.
- Promoting the use of a greater number of native species, especially native trees. Since many native species are difficult, if not impossible, to source from commercial nurseries, the Government should set up its own nursery to serve the huge number of planned developments in the next 10 to 20 years.
- Avoiding monoculture planting designs by selecting a large variety of native and exotic plants that provide food and habitat for local wildlife to enhance biodiversity.
- Planting in vertical layers with herbaceous, shrub and tree canopy layers to provide varied habitats for varied insects, birds and small animals.
- Developing 'no-go' areas with zero human interference in the middle of large planted areas so as to allow nature to develop freely.

To manage and maintain the landscape software to promote biophilia and enhance community wellness, we need to:

- Make natural history an important part of the school curriculum to let kids know more about human's reliance on nature and natural processes for our survival.
- Allocate sufficient budgets for

landscape maintenance, and build capacity in the local horticultural industry, raising both skill levels and wages to make it more attractive as a career, whilst improving workers' plant knowledge on maintenance practices to enhance biodiversity.

- Ban the use of inorganic chemicals in plant maintenance as they will kill not only wildlife but also humans, albeit more slowly and insidiously.
- Provide name tags for plants with QR codes linking to websites for information to encourage people to recognise and learn about the plants around them. There is a point of view: if you do not know the name of something, you cannot truly value it.
- Provide nature interpretation facilities and green tours of local landscapes that inform and educate the public on the wonders of the natural world.
- Create community farms to encourage people to work with the soil and enjoy the wonder of growing plants from scratch.

By designing biodiverse landscapes and promoting biophilic design, we can ensure the public can maintain essential connection with nature that fosters both mental and physical health—and where better to start than in and around the public and private housing developments? Let us make Hong Kong a truly biophilic city. 



ALEXANDER (SANDY) M DUGGIE
Managing Director, URBIS Limited

Sandy is a registered landscape architect; a Fellow of the Hong Kong Institute of Landscape Architects; and the Managing Director of URBIS Limited, a Hong Kong based design consultancy established in 1977. He has lived in Hong Kong and worked for URBIS since 1985. Throughout the years, he has contributed to several major territorial and strategic planning studies for the Hong Kong Government, and designed a range of private and public sector projects from small private gardens to large scale public infrastructure works. He is particularly concerned with the promotion of sustainable design and designing the public realm to meet the needs of modern society. He is also a Director of the BEAM Society Limited; a Director of the Professional Green Building Council; a Member of the Green Building Faculty of the Hong Kong Green Building Council (HKGBC); and a Co-opted Member of the HKGBC Green Labelling Committee.

References:

¹T. Beatley, 'Biophilic Cities – Integrating Nature into Urban Planning and Design'. Island Press. 2011.

²Mitchell's concept is known as *equigenesis* (R. J. Mitchell, 'What is *equigenesis* and how might it help narrow health inequalities?', *Cresh*, 8 November 2013). If an environment is *equigenic*, it may reduce the health gap by weakening the link between socio-economic inequality and health inequality. Because of their many health benefits, natural environments are potentially *equigenic*.

³R. J. Mitchell and F. Popham, 'Effect of exposure to natural environment on health inequalities', *The Lancet*, 2008.

⁴R. J. Mitchell, E. A. Richardson, N. K. Shortt and J. R. Pearce, 'Neighbourhood environments and socioeconomic inequalities in mental well-being', *American Journal of Preventive Medicine*, 49(1) (July 2015), pp. 80–84.

⁵A Gini coefficient of zero means there is an equal distribution of income; a number closer to one indicates greater inequality.

⁶<https://www.primaryhealthcare.gov.hk/en/>