

In the Early 1990s I found myself giving a talk to a group of young Saudi Arabian dissident designers who gathered secretly every month at the home of the recently deposed head of the powerful Haj Research Centre. We met late in the evening in his sublimely restored house in downtown Jeddah and I talked about the mathematics of tessellations in Islamic architecture. I had had no time to prepare since I only discovered on the journey to the meeting that I was the speaker (I was in the country on a GIS lecture tour). I was slightly more prepared for the opening remarks Professor Weijen Wang asked me to make at the Centre for Chinese Architecture and Urbanism's recent international conference on Buddhist Architecture, ['The Design of Chinese Monasteries: Space, Structure, and Place – Online Symposium on Buddhist Architecture'](#). Of course, Weijen only asked me to give a Dean's welcome, but since I am interested in religions, culture and architecture, I took the risk of sharing a few inexpert thoughts on the subject. I thought I would repeat them here to bring a slightly different tone compared to the average Dean's Roundup.

Religious architecture means many things:

1. Symbols that teach (stained glass windows in medieval church architecture)
2. Symbols believed to hold spiritual power (gargoyles in the west; gable-ends in the east; representations of deity in the Indian sub-continent; primitive pantheistic tribal shrines)
3. Abstracted forms that inspire (heavenly domes of the European Renaissance; raked Zen stone gardens of Japan's Muromachi period)
4. A place for sacred community living (Buddhist and Catholic monasteries)

5. Spaces for public worship (the wide-span arches of the grand Blue Mosque in Istanbul)
6. Spaces for private worship (Daoist shrines; diminutive Greek Orthodox churches on the top of rocky outcrops)
7. Spaces for receiving revelation (the Buddhist Mogao caves in Gansu Province; caves of the 3rd C AD desert fathers and mothers in Egypt and of the 3rd C BC Jewish Essene communities in Palestine)
8. Spaces for protection in times of conflict and famine (the hilltop castles of the Cathar sect in Languedoc, Southern France; Rome's and Cappadocia's catacombs)
9. Dialectic symbols of reformation (American puritan churches of the founding fathers; whitewashed walls of post-reformation English churches)
10. Combative statements of doctrine and opposition (Islamic ceramics architecture that studiously avoids the cruciform pattern and other symbols of worship; atheistic 1970s communist slogans painted over religious art)
11. Symbols of national unity and identity (historical and recent battles over Crimea, birthplace of Russian Orthodoxy in the Urals; Jerusalem, religious root of the three Abrahamic religions; the Drepung monastery in Lhasa, which once housed 10,000 monks).

I suspect that some of the most interesting advances in understanding religious architecture, may come at the boundaries of some of the above, demonstrating how the purpose and function of a religion shifts over time. For example:

- As the medieval church of Europe became more corrupt and powerful, being the main unifying political power at a time of rising wealth and global trade and a time of weak or emergent nation states, religious buildings became a strange mix of the devotional and political, displaying and reinforcing earthly power and dominion alongside the heavenly. They became very different to the church buildings constructed during the humbler dark-ages, when the emphasis was more on inspiration and private worship.
- I imagine that you can study Buddhist architecture technically, from a design and construction perspective, and from the perspective of Buddhist teachings. How do these technical analyses relate to more generic dynamics that link the individual human spirit to a physical context, place and space?
- My spiritual devotion is framed by a particular set of beliefs and teachings. But architecture from faith systems I do not follow can inspire me. I know that it is the same the other way around. Why is that? How is that?

- What is it in a specific religious architecture that connects to a common human spirituality? Is it beauty? Simplicity? An absence of ostentation, arrogance or bigotry? And if beauty, can we be even more specific – does symmetry play a part? Or the lack of it? Or the manipulation of it? And if symmetry, what kind? Is the reflective symmetry of classical architecture more or less efficacious than the infinitely dividing symmetry of nature and the Arabesque? Are the curvaceous concave forms of Persian and Byzantine religious architecture less or more inducive to spiritual expression than the rectilinear doctrinal architecture of Europe? When Renaissance architects re-introduced the Mesopotamian dome (via Italy) to the cruciform ecclesiastical plan, what were they doing? What was the effect on spiritual ambiance of adding a circle to the model of heaven?
- Does the visual power of the circle in religion lie not just in its representation of spiritual focus, freedom and eternity (Buddhism), but also in its perfect continuous simultaneous multi-directional symmetry? Or in its representation of continuity? Or repetition? Or boundedness (Buddhist contemplative concentration)? Or the inverse of boundedness: expansiveness (Christianity). Or unity, completeness and majesty (the circle in Islam). Or wholeness and the multifarious linkages between humans and nature (Aboriginal and North American Shamanistic religious circles). Or in emptying (Buddhism). Or filling (Christianity). Or futility (Judaism long avoided the circle as a symbol, favouring linearity).
- What is it that closes off the religious spaces of one faith system to the searching human soul of another faith, or to someone with no particular faith?
- When does religious architecture serve the purposes and needs of religious elite and of the powerful, and when does it serve the needs of the common person in search of spiritual sustenance? When is it a pure craft artefact offered to a higher cause; and when is it craftsmanship appropriated for an ignoble cause?
- Political science would lend an answer from its own set of questions about religious organisational architecture: it is better when state and religion are separated. I wonder if this has any resonance in the design of architectural spaces and structures in the Buddhist tradition? If not, then this would be a truly significant research finding.

From the fascinating talks that followed, I concluded that in Buddhism, as with every other major religion, the state's championing can be a mixed blessing and that this is manifest in built form. The simple religious architecture that travelled from Sri Lanka to China (I think, before the Tang Dynasty golden age of Chinese Buddhism), reminded me of the simpler Celtic Christianity that pre-dated, and then for 500 years or so ran in parallel to, the institutionalisation of the Christian religion in the British Isles. The emergence of exotic architectural form (Tibetan fortified towers) as a hybrid temple morphology in the hills north of Beijing, reminded me of the many trappings of empire that embellished Ottoman Islamic architecture and early

medieval and Victorian Christian architecture. State-sponsored faith has often used architecture in a messy combination of religious and empire expansion and empire tends to be written into grand religious structures.

The conference made me think again about *pure architecture*, in the sense of generic architectural principles that can elevate noble virtues whatever the religion, place or time. Much like debates about the theory of *pure music*. It also suggested certain lines of enquiry that no doubt many have pursued over the years. For example, conscious versus faddish dialecticism in architecture. Or put another way: oppositional architecture, when one style consciously seeks to reverse or override another. This seems to happen constantly in architecture as in music and fashion. But what of those moments when the whitewashing, bulldozing, denouncing and redesigning follow chapters in human-kind's bumpy search for knowledge, meaning, significance and spiritual advancement? Do those architectural moments stand out or have greater longevity or significance as built environment punctuation marks in the chronicals of civilisation? I suspect not. I think that the twin evolutionary principles of function and beauty probably shake out aberrations, dead-ends, over-reactions, anger and hatred. Oppositional design soon becomes just another design tradition and stands or falls on its intrinsic merits. As a teenager in the 1970s I wore shirts with impossibly long rounded collars, which I take to be a reaction to 1960s collarless shirts. Fortunately I've not seen them since. Islamic ceramic tessellations became one of the most recognisable, unique and beautiful artforms, and few care that the tradition was influenced at the start by prohibitive and oppositional sentiment.

Thanks Weijen and others in the Department of Architecture for a stimulating conference. Congratulations to those mentioned below for all your achievements and contributions.

Chris Webster

Dean, FoA

Department of Urban Planning and Design

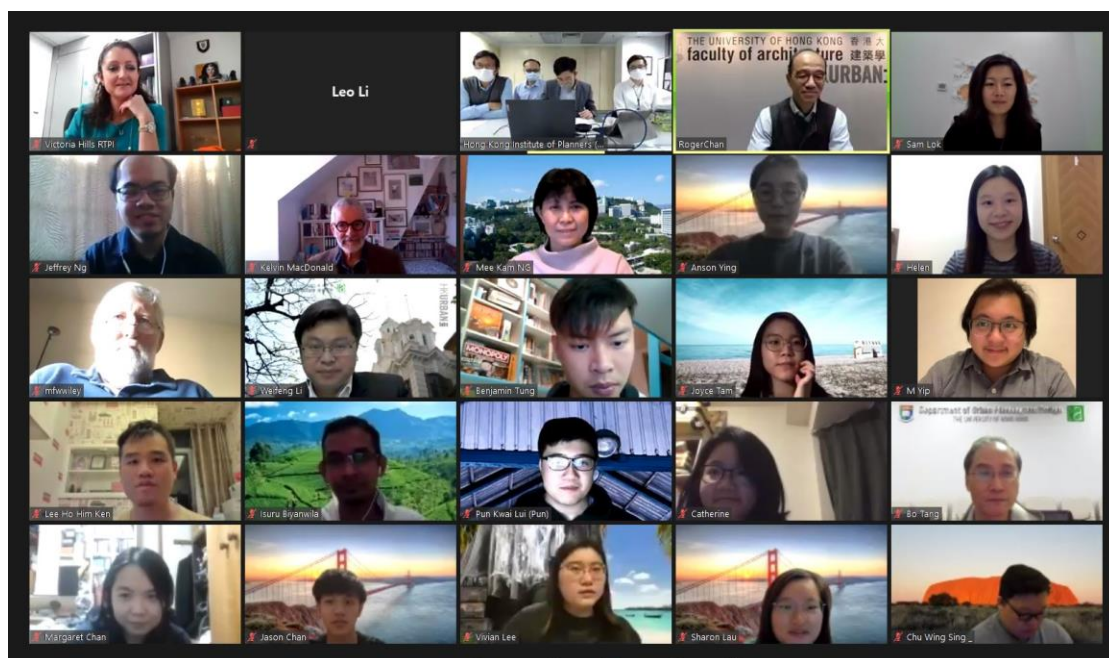
1. HKIS Outstanding Dissertation Awards

- The following graduates and students have received the HKIS Outstanding Dissertation Awards 2020:

Category	Prize	Student	Project Title	Supervisor
Master Thesis	Top Award	Yeung Sin-yee, Tiffany (BAUS 2018; MUP 2020)	Rediscovering the Leftovers – An Investigation of Spaces Underneath Flyovers in Hong Kong	Ms Christina Lo
Planning & Development Division	Second Award	Tam Hiu-lam (BAUS 2020; MUP Year 1)	Walking to Tram: Spatial Cognition of the Route Environment in Hong Kong	Dr Guibo Sun
Planning & Development Division	Second Award	Yeung Yat-ching (BAUS 2020; MUP Year 1)	Exploring Factors Affecting Travel Mode Choices in Hong Kong Using Analytical Hierarchy Process	Dr Kyung-Min Nam

2. Joint-Institute Student Talk

- DUPAD co-organised with RTPi and HKIP a joint-institute student talk via Zoom on the topic of “Shaping Professional Planning Career”, on 22 January 2021. In this student talk, members from RTPi and HKIP shared with prospective young planners their career development pathways in Hong Kong and in the UK, offered tips on gearing up with essential skill sets, and introduced the support from the professional institutes in the early stage of their planning career amidst changing city developments and social aspirations. MUP graduate, Mr Jeffrey Ng, who is also the RTPi South East Young Planner 2018, a Finalist of RTPi Young Planner 2020 and now Planning Officer in West Berkshire Council in the UK, was one of the three speakers.



Centre of Urban Studies and Urban Planning

1. Alain Chiaradia

- has published a journal paper:

Louie Sieh, **Alain Chiaradia**, Stephen Jones and Fiona Waters (2021), The value gradient map, URBAN DESIGN, Winter 2021 Issue 157:

<https://www.udg.org.uk/publications/journal/urban-design-157-winter-2021>

Abstract: *Professional urban design education in universities usually involves teaching students techniques in how to do research but less often, what the role of research is in design, whether in their student or future professional work. This is not for a lack of theorising about the relationships between research and design. For example, a well-known framework was proposed by Frayling (1993): 'research into, through, and for art and design'. A practice-teaching collaboration between the Master of Urban Design (MUD) programme at the University of Hong Kong (HKU) and the design practice Woods Bagot aimed to address these gaps through a deceptively simple yet effective platform called a Value Gradient Map (VGM), was conceived by Stephen Jones and Alain Chiaradia, and tested in practice with clients and in the professional studio, then refined further in teaching. The VGM operationalises 'value' in urban design. Value, a much used but much misunderstood concept, is the basis of decision-making in urban design processes. By value we do not mean a precisely optimised nor objectively measured price, but a heuristic that articulates how designers assess the worth that their client, or the eventual user, may place on the proposed design.*

2. Dr Derrick Ho

- has been featured in an article on South China Morning Post, 23 January 2021: <https://www.scmp.com/news/hong-kong/society/article/3118890/hong-kong-maids-need-break-covid-19-fears-make-it-harder>

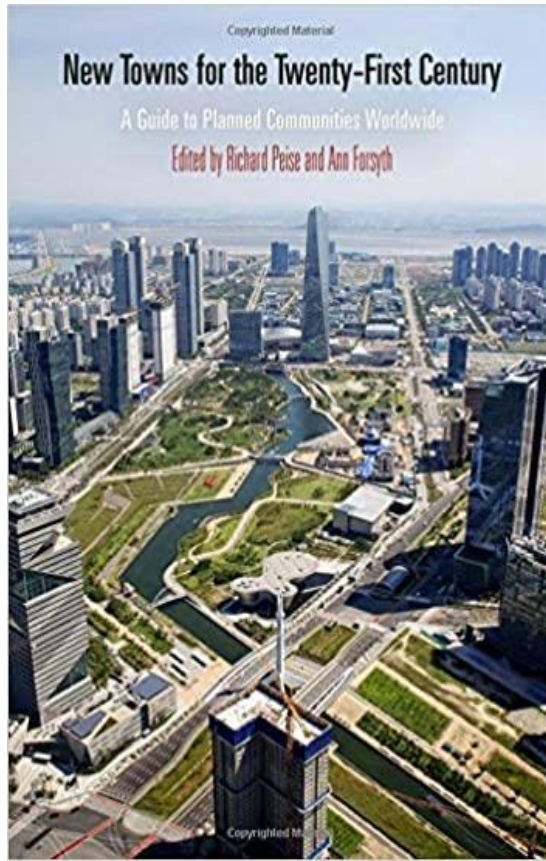
Title: 'Home away from home' (print version) / 'Hong Kong maids need a break, but Covid-19 fears make it harder for them to gather on days off' (online version)

Summary: Faced with COVID-19, the general public has concerns regarding 'weekend gatherings of Hong Kong maids'. This SCMP article highlights Dr Ho's research (which has been published in Annals of the American Association of Geographers) with regard to the use of social spaces among foreign domestic workers in Hong Kong. Dr Ho was also asked to give his opinion on how society could support foreign domestic workers, without escalating risks from the pandemic.

3. Professor Anthony Yeh

- has published the following paper:

Yeh, A.G.O. (2021), 'Successes and Failures of New Towns in Hong Kong', in Richard Peise and Ann Forsyth (eds.), New Towns for the Twenty-First Century, Philadelphia, University of Pennsylvania Press, pp. 182-199.



Successes and Failures of New Towns in Hong Kong

Anthony Gar-On Yeh

New towns were actively developed in Asia after World War II, especially in the newly industrializing economies, such as Hong Kong, Singapore, and South Korea. They were a means to decentralize the urban population in their big cities, improve living quality, and provide land for industrial development (D. R. Phillips and Yeh 1987). The new town movement has slowed down a bit since the 1990s, but with a recent rapid increase in population in large Asian cities, especially those in China and India, new towns are reemerging again in the Asian urban planning arena. Among the Asian cities, Hong Kong has one of the oldest and largest new towns programs. The successes and failures of new towns in Hong Kong can help urban planners and policy makers in the planning and development of future new towns (Yeh 1987, 2003).

New Town Development in Hong Kong

New town development in Hong Kong can be dated back as early as 1953, when the first industrial satellite town was developed in Kwun Tong; the first new town was in Tuen Wan in 1959. Kwun Tong and Tuen Wan were meant to alleviate the congestion problem in the main urban areas due to a large influx of refugees from China after the revolution in 1949, and to provide land for industrial growth. Located at the urban fringe at that time, Kwun Tong was not planned to be self-contained but a satellite town. Tuen Wan (including Kwai Chung) was planned to be the first self-contained new town in Hong Kong. However, as both new towns were developed in haste, their planning and development were ad hoc and chaotic.

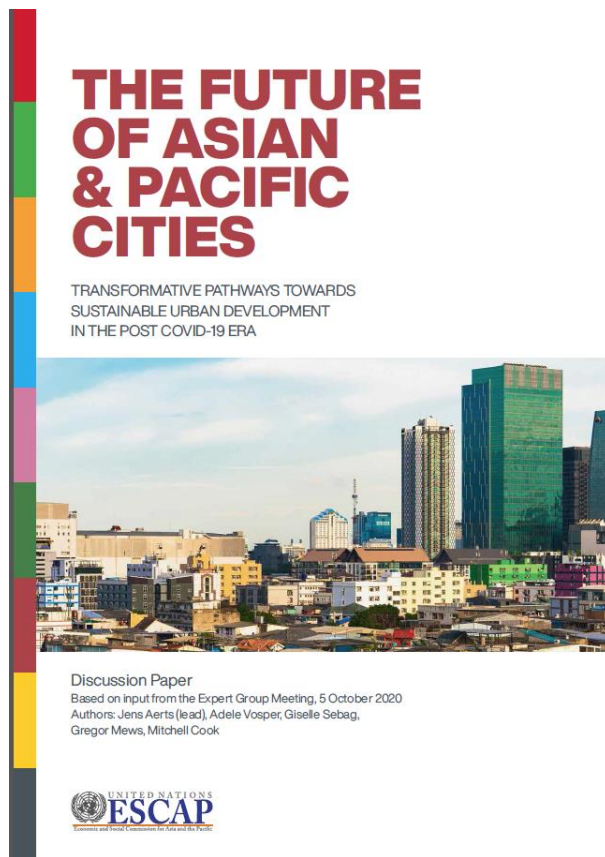
In 1965, the government decided to proceed with the planning and development of two other new towns, at Castle Peak (renamed Tuen Mun in 1973) and Sha Tin. However, because of the slump in the property market after the bank crisis in 1965 and the riots in 1967, the new towns program lost its momentum (Leung 1980).

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Healthy High Density Cities Lab

1. Dean Webster

- has been acknowledged by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) for his contributions to the development of [a new discussion paper on the Future of Asian and Pacific Cities: Transformative Pathways Towards Sustainable Urban Development in the Post COVID-19 Era](#), via his participation as a keynote speaker on the topic of [Asian Cities beyond COVID-19](#) at the [5th October 2020 Expert Group Meeting](#) which informed the final content of this paper.



This discussion paper complements the framework, thematic pillars and pathways developed in [The Future of Asian and Pacific Cities report](#), adding the dimension of urban health and resilience from the lessons learned during the ongoing health crisis. The paper examines long-term health equity issues and the implication of the current COVID-19 pandemic on cities across the region.

It is believed that the content of this paper shall contribute to enhancing the relevance of the policy pathways in The Future of Asian and Pacific Cities report in the context of the COVID-19 outbreak. Further, it identifies challenges and opportunities of cities in the region to prepare for, respond to and recover from pandemics, across different urban systems, ensuring sustainable urban

development and localisation of SDGs. The paper suggests additional recommendations/pathways for Asian and Pacific cities to adequately recover in the short-term and 'Build Back Better' in the medium- and long-term.

2. Dr Xiao-Cui (Joyce) Chen

- has successfully transferred her NSFC project to HKU:

Project title: Population exposure to fine particles (PM_{2.5}), black carbon (BC), and ozone (O₃) in the Greater Bay Area: Using sensor data and machine learning for exposure model improvement and validation

Principal Investigator: Dr Xiao-Cui Chen

Awarded grant: Young Scientists Fund of the National Natural Science Foundation of China (Grant No.: 41907181)

Awarded amount: 260,000 RMB (312,500 HKD)

Project duration: three years (1 January 2020 - 31 December 2022)

Abstract: *Adverse health effects of fine particulate matter (PM_{2.5}) exposures have been widely reported. Black carbon (BC) is considered a better indicator of harmful particulate species from combustion sources (e.g., traffic emission) than PM_{2.5} mass in urban areas. In the past decade, ozone (O₃) pollution has become a significant concern in the Greater Bay Area, and adverse health effects of BC and O₃ were well documented. However, ambient monitoring does not adequately represent individual (or population) exposure levels, and exposure measurement errors were shown in PM_{2.5}/BC health effects studies. Accurate estimates of individual-level exposure to air pollution are critical in environmental epidemiology for studying exposure-response relationships. The recent advance in mobile sensor monitoring technologies combined with machine learning approaches provides a broader scientific perspective and can improve personal exposure assessment with higher prediction accuracy. This study proposes using machine learning to conduct PM_{2.5}, O₃, and BC exposure modeling. The best-fit model will be utilised to estimate the population exposure to air pollutants in the Great Bay Area. The primary study objectives are to: characterise personal exposure to PM_{2.5}, BC, and O₃ levels in the general population in core cities (e.g., Hong Kong, Guangzhou, Shenzhen) of the Greater Bay Area; characterise the seasonal and regional variations (and city-specific heterogeneity) of individual exposure to PM_{2.5}, BC, and O₃ as well as the corresponding determinants of human exposure; establish novel models to estimate population exposure to PM_{2.5}, BC, and O₃. The results will further be applicable for setting up an activity-pattern database for air pollution epidemiological studies in the Greater Bay Area and providing a reliable exposure assessment model for investigating short-term and long-term health effects.*

3. Dr Xiao-Cui (Joyce) Chen, Dr Chinmoy Sarkar and Dean Webster

- their co-authored paper has been accepted by the Environmental Pollution journal for publication:

Xiao-Cui Chen, Hsiao-Chi Chuang, Tony J. Ward, Junji Cao, Ta-Chih Hsiao, **Chinmoy Sarkar**, **Chris Webster**, Kin-Fai Ho. Toxicological effects of personal exposure to fine particles in adult residents in Hong Kong. (Manuscript Number: ENVPOL-D-20-02104R5)

Abstract: *Toxicological studies have demonstrated the associations between fine particle ($PM_{2.5}$) components and various cytotoxic endpoints. However, few studies have investigated the toxicological effects of source-specific $PM_{2.5}$ at the individual level. To investigate the potential impact of source-specific $PM_{2.5}$ on cytotoxic effects, we performed repeated personal $PM_{2.5}$ monitoring of 48 adult participants in Hong Kong during the winter and summer of 2014–2015. Quartz filters were analysed for carbonaceous aerosols and water-soluble ions in $PM_{2.5}$. Teflon filters were collected to determine personal $PM_{2.5}$ mass and metal component concentrations. The toxicological effects of personal $PM_{2.5}$ exposure—including cytotoxicity (lactate dehydrogenase levels), inflammatory response (interleukin [IL]-6 release), and reactive oxygen species (ROS) production—were measured using A549 cells in vitro. Personal $PM_{2.5}$ samples collected in winter were more effective than those collected in summer at inducing cytotoxicity and the expression of proinflammation cytokine IL-6. By contrast, summer personal $PM_{2.5}$ samples induced high ROS production. We performed a series of statistical analyses, Spearman correlation and a source apportionment approach (e.g., positive matrix factorisation [PMF]) with a multiple linear regression (MLR) model, to explore the sources contributing most significantly to personal $PM_{2.5}$ bioreactivity. Secondary inorganic species and transition metals (Fe, Mn, Cu, and Zn) were discovered to be weak-to-moderately associated with cytotoxicity (r_s : 0.26–0.55; $p < 0.01$) and inflammatory response (r_s : 0.26–0.44; $p < 0.05$), respectively. Carbonaceous aerosols (i.e., organic and elemental carbon; r_s : 0.23–0.27; $p < 0.05$) and crustal material (Mg and Ca) were positively associated with ROS generation. The PMF–MLR models revealed that tailpipe exhaust and secondary sulfate contributed to ROS generation, whereas secondary nitrate was the major contributor to $PM_{2.5}$ cytotoxicity and inflammation. These results improve and variate the arguments for practical policies designed to mitigate the risks posed by air pollution sources and to protect public health.*

iLab

1. Professor Wilson Lu, Ms Jinying Xu, Dr Fan Xue and Dean Webster

- their co-authored paper has been accepted by the Construction Research Congress 2022 for presentation:

Wilson Lu, Jinying Xu, Chris Webster, Fan Xue (2021). The meaning, meaninglessness, and a more meaningful future of S-curve, *CRC 2022* (CRC reference: PMP-47).

Abstract: *Sigmoidal curve, or figuratively S-curve, is often used to indicate the accumulative project activities and their corresponding resource expenditures as the project progresses. Since it was coined, the S-curve, like Gantt Chart and Critical Path Method, has been mainstreamed as one of the essential instruments underpinning project management, particularly in projects' cost, time, and resource management. This paper discusses the rich meaning of S-curve in project planning, predicting, monitoring and controlling, but argues it being meaningless to predict future projects using past small data. Furthermore, unlike products, no two projects are the same but heavily contingent on their internal and external uncertainties. Traditional methods in producing and exploiting S-curve have difficulties in handling the various contingent factors. This paper goes on to propose that the S-curves can be more meaningful if they can exploit the state-of-the-art big data and their analytics for S-curve development and applications. It further calls for more efforts to theorise the S-curve for more meaningful applications by explaining relationships between expenditures and time, probing into the take-off, turning, and zero-growth points, and testing robustness.*

Sustainable High Density Cities Lab

1. Dr. Ren Chao

- has been featured in the article titled '[Air conditioning adds to global warming, making us use it more. How to break the vicious cycle](#)', on South China Morning Post, 3 February 2021.