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# TABLE OF CONTENT

## A FEATURE

- Generation of Actionable Data and Utilisation for City Development** 8  
Ariel Mak and Dr. Bruce Chong
- Filling the Gap for an Effective System to Support for a Sustainable Planning of Age-Friendly Community** 25  
Tim Lo and Karen Lee
- Planning for Sustainability via Co-creation with the Community:  
How Might the Social Lab's Co-Creation Method Work in Hong Kong?** 45  
Hermion Au, Henry Kan and Ada Wong on behalf of MaD

## B COLUMN

- A Paradigm Shift for the Planning of the New Territories** 58  
Jimmy C F Leung
- Planning for a Sustainable Future** 67  
Betty Ho

## C STUDENT CORNER

- BIM-GIS Integration: Comprehensive Development Area at Diamond Hill** 72  
Hung Ting Yan, Winnie, Kok Leong, Moon and Lui Chin Yan, Minnie

## D VIEWPOINT

- Some New Urban Places and Nodes in Hong Kong** 85  
Ho Chi Wing

## E NEWS

- HKIP Awards 2020** 96
- Transector Efforts to Build a Healthy City for Hong Kong** 108  
Fan Ning and Karen Lau
- List of HKIP Members** 119
- List of Registered Professional Planners** (as at October 2021) 132

# Message from the Editors

The development of sustainable cities is a multifaceted endeavour that requires concerted efforts from different stakeholders to balance economic growth, social inclusion, and environmental protection. The recent extreme weather events and the COVID-19 pandemic have once again reminded us of the pressing global need to plan for a sustainable future.

Amid these challenges, the theme of the current issue, “Planning for a Sustainable Future” comes as both timely and critical to help the planning profession contemplate what can be done to achieve sustainability goals for our future generations. We have received many insightful articles and columns.

Ariel Mak and Bruce Chong suggest the importance of geospatial data, digital infrastructure, and analytical tools for planners to closely monitor the urban environment and make scientifically-based planning decisions in a digital age.

Tim Lo and Karen Lee, noting the inevitable aging trend in Hong Kong, developed an innovative set of sustainability benchmarking tool for assessing the age-friendliness of a community. The authors call for the built environment professionals, amongst other stakeholders, to contribute to the criteria of the benchmark by understanding the needs of the community.

On behalf of Make a Difference Institute (MaD), Hermion Au, Henry Kan and Ada Wong share with readers the challenges and reflections in various interesting community design experiments undertaken with their innovative methodology namely “Social Labs”.

Jimmy Leung's column explores the history and constraints for the planning of the New Territories. Looking forward, he points out that the New Territories can play a more proactive role in fulfilling sustainable development goals.

Betty Ho revisits some of our past efforts in achieving carbon-neutral and casts light on some potential land supply options.

In the Viewpoints section, Ho Chi Wing introduces critical criteria to evaluate the quality of urban open space. He also walks readers through some recent good examples of urban open places and nodes in Hong Kong.

In the Student's Corner, Winnie Hung, Moon Kok, and Minnie Lui demonstrate the application of BIM-GIS Integration with a real life example. The students show that such an approach could facilitate site planning and building design for the professionals of the AEC industry.

In the News section, Fan Ning and Karen Lau recapitulate the essence of their previous sharing session with the built environment professionals on the subject of “Transector Efforts to build a Healthy City for Hong Kong” from the perspective of medical professionals.

Last but not least, we are pleased to include the coverage on the 2020 HKIP Award winners.

Editorial Committee December 2021

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PLANNING  
AND  
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# A FEATURE

## FEATURE PAPER

# Generation of Actionable Data and Utilisation for City Development

Ariel Mak and Dr. Bruce Chong

*Dr. Bruce Chong is a Director and City Advisory Leader of Arup, with a focus on formulating strategy and implementation plans on smart city, resources efficiency, green infrastructure and climate resilient city.*

*Ariel Mak is a consultant in Arup with a background in geomatics engineering, urban planning and information systems.*

Planning is a spatial activity, involving the manipulation of urban space to create better and sustainable cities. Planning also determines the future of a city, often making choices and design based on comprehensive data about the past, present and the anticipated future. With much of planning decisions centring around the management of urban environment, operation of urban services, and interactions within the city, spatial data is therefore of high importance as it enables planners to better understand the current needs of the city and correspond these needs to a specific geographical location.

## Moving towards a Smarter Hong Kong

From as early as 1994, countries have started development of “National Spatial Data Infrastructure” that promotes and offers geospatial data sharing including US, Singapore, UK, Netherlands, Switzerland. Hong Kong’s move into

spatial data formally began in 2017 with the Smart City Blueprint 1.0 and Hong Kong 2030+, paving the way for the adoption of Building Information Model (BIM), development of Common Spatial Data Infrastructure (CSDI), and the 3D Digital Map; all contributing towards the Smart City



Figure 1. Development of Smart City, and Spatial Data Infrastructure and Applications in Hong Kong



strategy of Hong Kong. Together, they provide the foundation for various kinds of application including land administration, environmental assessment, town planning, and transport and engineering studies. Recent release of Smart City Blueprint 2.0 builds on previously established strategies and introduces enabling infrastructure, in the form of IoT devices, and formalise a number of smart applications for the urban environment and assist in the collection of urban data. These collections of urban big data would eventually be made available through data portals and data services.

Currently, data is mainly accessed through “Data.gov.hk” (資料一線通), a one-stop shop for open data for commercial development, and the

“Geospatial Data Store”, the alpha version of CSDI which compiles together data that have spatial elements such as locations of government facilities and transportation data. The intention is to grant developers quick access to data through online portals, improving transparency, and in the case of CSDI standardising the format for data analysis using proprietary and non-proprietary Geographic Information Systems (GIS) / software.

As planners, apart from access to data, the ability to visualise and present designs in a manner easily understood by public and key stakeholders are essential. Accessibility to photorealistic models enhances our sense of the world, giving recognisable visual reference and context to otherwise abstract forms of data. The ongoing

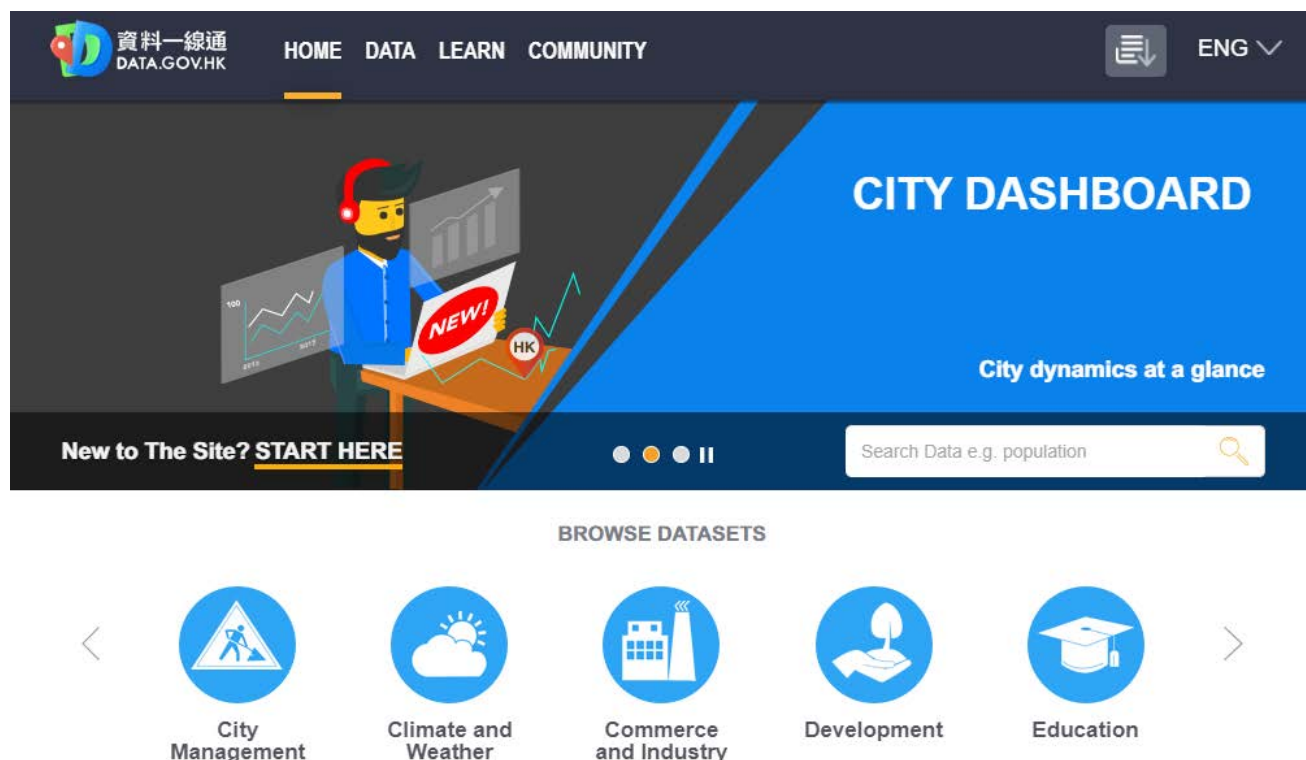


Figure 2. Data.gov.hk

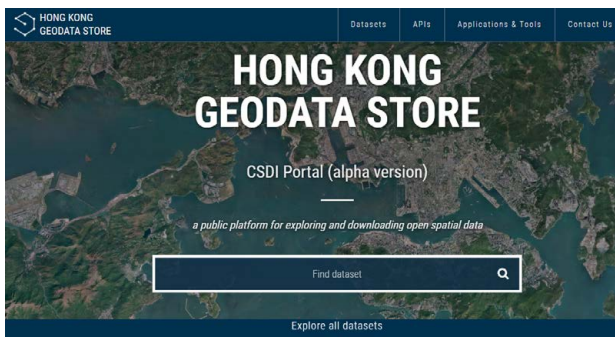


Figure 3. Current Hong Kong Geodata Store (CSDI Portal)

generation of 3D Digital Map with individualised models of various categories such as building, road, vegetation, terrain, water bodies, sites etc., would form a major component, facilitating the sharing and opening of government geospatial data and meeting the needs of digital map applications (SMO, 2021). At a strategic level, the 3D Digital Map is a core component of the digital infrastructure underpinning Hong Kong's Smart City development. By having the ability to integrate different datasets, analyse large volumes of data and present the data analysis in innovative and informative formats, it opens up a wide range of applications and use cases

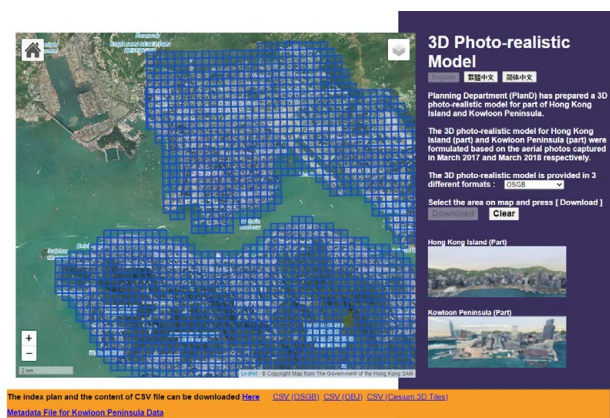


Figure 4. Current 3D Photorealistic Model of Hong Kong

## Recognising Importance of Geospatial Data

Data with spatial elements (i.e. geospatial data) is often more advantageous as it can directly correlate to the physical alignment of the city, particular landmarks, and resource locations. The benefits to sharing geospatial data can be roughly classified into improving efficiency in terms of time savings, cost avoidance, and improved resource allocation; better effectiveness through improved outcomes and facilitating communication to bring about change; and introducing process changes.

The transformation of a city, for example through urbanisation, is inevitable in the modern day, though using geospatial data in planning “smart urbanisation” can be achieved (Paul, 2018) where resources, in particular land, can be efficiently allocated without compromising various aspects of sustainability. Geospatial and non-spatial data can be combined and mapped into the Geographic Information System (GIS) using map overlays, to identify and visualise a variety of urban aspects such as surface water, climate hazard impact areas, and service proximity of public services (e.g. hospitals and schools). Aligning these mapped aspects with planning norms and prescribed guidelines, the relationship between buildable / expandable space, environmental constraints, and social expectations can be mapped out, analysed, and visualised in the virtual representation.

## Digital City Data Infrastructure

A safe and reliable digital infrastructure is essential with the integration of the physical world and digital data. Enabling infrastructure and ubiquitous sensors housed within a “sensing layer” of the data infrastructure can be intricately woven into the urban fabric to capture dynamic and traditional static data resources and real-time information within the urban environment, becoming new resources for existing and future planning process. Collected data and information can be fed back into existing systems or distributed and disseminated through the network comprising

of various telecommunication infrastructure and devices, allowing real-time updates and ad-hoc analysis of the urban environment.

Data collected may be stored and managed within the data warehouse as “raw ingredients” waiting for consumption by users and applications. Ideally, these raw ingredients will be under a standardised and open format for accessibility and management purposes and would be provided by a variety of sources, such as contribution from individual Government departments, automated collection

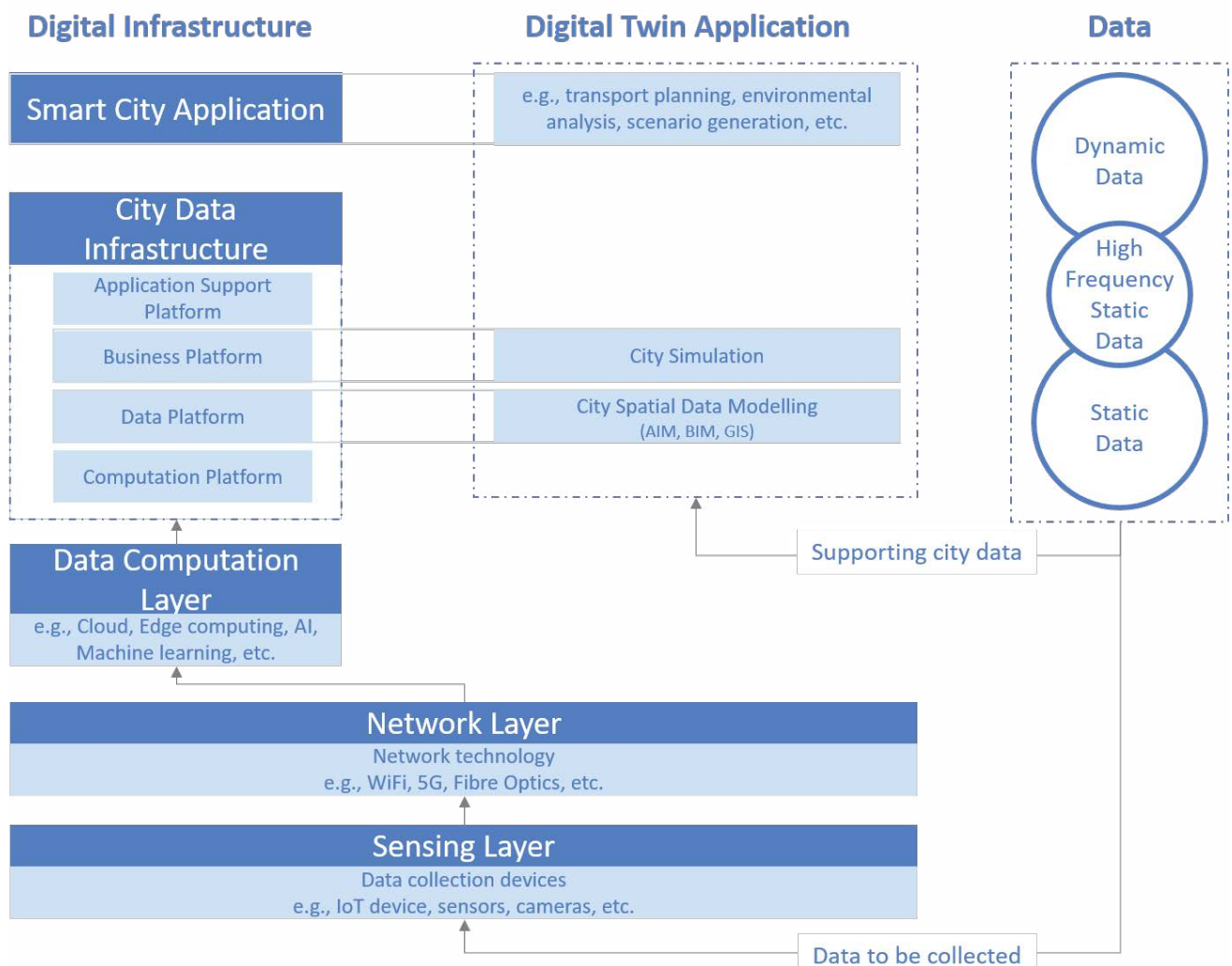


Figure 5. Digital Masterplan Architecture (Cavendish et al., 2020)

from embedded sensors, the industry and organisations. Dynamic data generated in real-time by the city's activities can make use of algorithms, edge computing, Artificial Intelligence / machine learning to assist in efficient allocation of resources, responding to the immediate needs and reducing the negative lagging effects of planning.

Alongside data, there needs to be supporting applications. An open suite of applications, such as planning scenario generation and analysis, urban monitoring, workflow management, connects with and makes use of stored data. Actionable data, i.e., relevant and useful data that is ready to be used by applications, transformed from existing data sources and

from dynamic data supplies applications and help generate informative solutions for decision making. Applications can contribute insights as data back into the data warehouse to be used in other applications or as a foundation to further develop other analytical applications.

Thusly armed, users can then manipulate, combine, and analyse these datasets to support the decision-making process.

### Digital Twin to Bridge the Digital & Physical World

The Digital Twin, a virtual representation of real-world objects, or cities, allows users to interact, alter and change conditions of datasets to facilitate analysis, visualisation, and understanding of changes and its effect on the

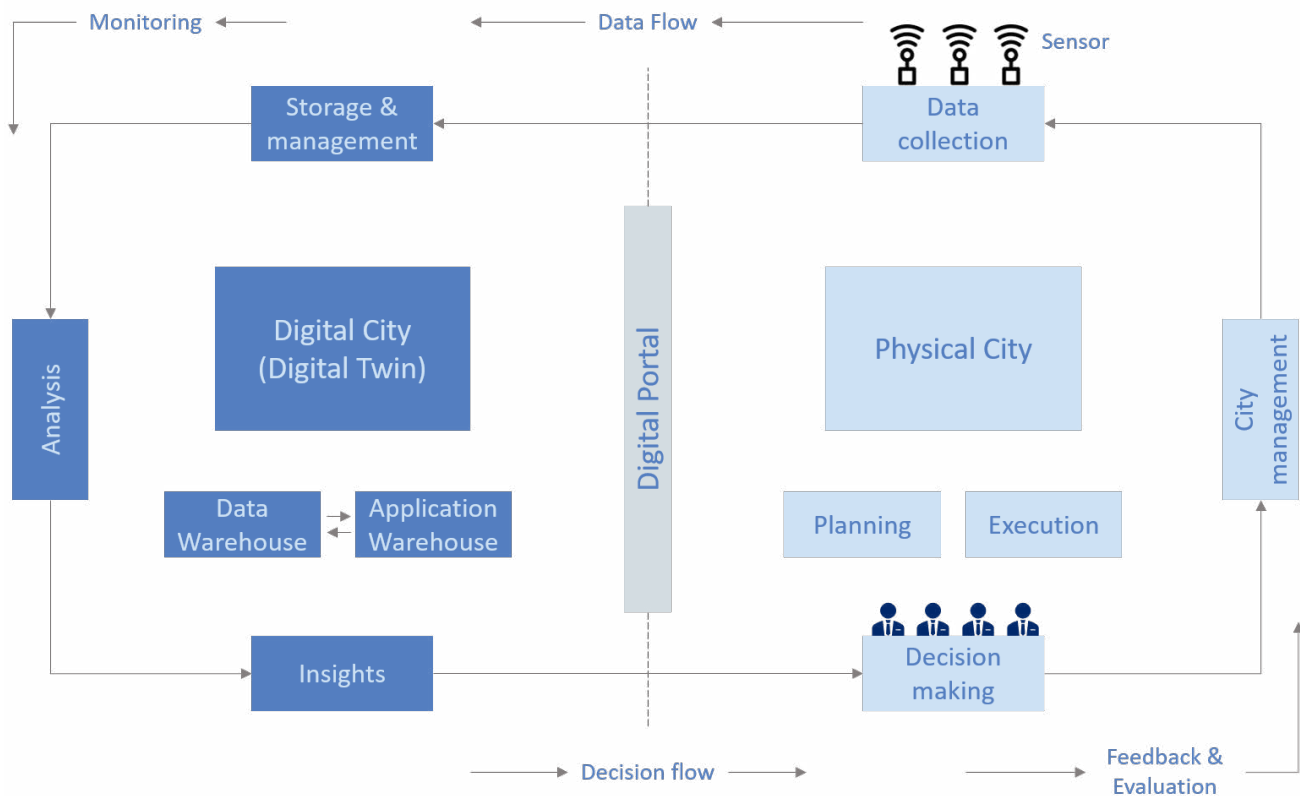


Figure 6. Linkage between Digital Twin and the Physical City (adapted from Cavendish et al., 2020)

physical world.

Data generated from the Digital Twin and the corresponding Digital Infrastructure that is based around the city's smart / intelligent operating system can be shared, used and reused in other applications, use cases, or projects. A Digital Twin is therefore indispensable to bridge between the digital and physical world, allowing real-world data to be collected and manipulated, facilitating visualisation of temporal and spatial changes with respect to decisions and actions made.

The Digital Twin not only makes use of data, but also generates data. Using a myriad of sensors embedded into the physical environment, the Digital Twin collects environmental data, process and analyse these data to generate insights that can be shared back to the original source object, thus enabling timely reactions to physical events.

### **Management of Digital City Data**

The rich data environment, as a result of the application of a Digital Twin or merely through ubiquitous sensors, gives rise to diversification in data quality, format, and security. Therefore, a city data infrastructure and the related data management process is essential to coordinate the effort of collecting and standardising data for

use. Between ensuring the validity of collected data and the lawful use of data themselves, a certain degree of trust is required. Trust on the data sources to provide authentic and real data that reflects the environment, trust on the users to not misuse the data, and trust on the data managers to not manipulate the stored data to twist the truth of the matter.

With the advancement of technology, it is possible that not all data collected are “useful” or “relevant”. Collected data are often cleaned and classified to ensure they are useful to potential users. Through specifying technical conditions of the data, such as accuracy and time relevance, it guarantees a certain degree of quality and ensures decisions made using this data can correctly reflect the current urban environment. Establishment of a semi-official organisation to track and supervise data contribution and consumption helps form an “accountability system”. The Open Data Institute explored the feasibility of forming an “Urban Data Trust” to provide independent management of data and act as an intermediary between data source, data providers, and data users, and ensuring compliance between the three parties while protecting their shared interests (Open Data Institute, 2018).

The secondary function of such infrastructure is

to reduce data abuse and leakage which may cause harm, and in turn could make citizens be wary of the data sharing and transparency process. Data security is often the forefront of people’s argument against data collection and use. While an individual citizen’s data may be protected by local regulations and policies for data privacy, protection on the data themselves is also crucial to enable the use of data in planning and facilitate Smart City applications. Data encryption is typical to ensure transmission between source of collection and data storage is protected while accessibility management tracks and audits the “physical” usage of data.

### Aligning Data with multiple Development stages

Generated data offers planners the ability

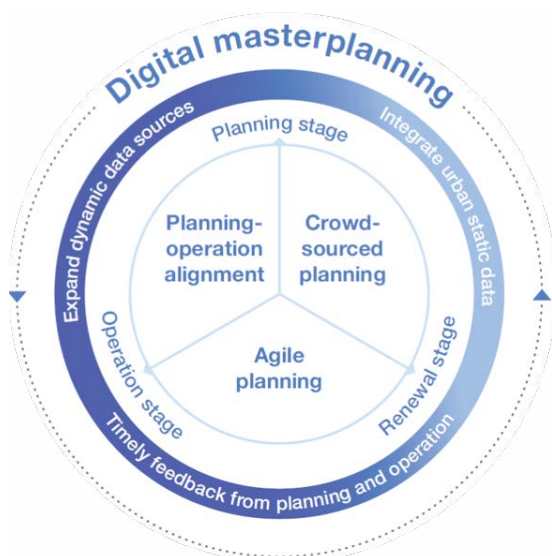


Figure 7. Planning driven by Dynamic Data (Cavendish et al., 2020)

to trace how urban spaces are being used. This opens the possibility of using actual performance evidence rather than prescriptive

rules to formulate and assess a planning/design proposal. Unlike in conventional planning practices, where the use of prescriptive planning standards and guidelines play a dominant role and serve as a proxy for ‘good’ planning outputs, collected spatial data and urban environment data offers insights into the relationship between planning / design scheme and the ultimate end-user experience and behaviour.

To achieve alignment between planning and operation, an “Activity Information Modelling” environment will be essential for collecting, assessing, and analysing behavioural data in the environment in combination with Building Information Modelling (BIM) through the use of Geographic Information System (GIS). Data collected and generated through Activity Information Modelling, such as dynamic pedestrian data and vehicular movement, can be store, visualised and analysed within a building environment, provided by the BIM, with geographic references. A recent study (Arup, 2020) applied this method to understand local behaviour, offering insights and demonstrating mobility patterns of city residents and facilitating human-centric design within the transport context, allowing planners to identify the reason why some users prefer particular modes of transport. This study demonstrated families

in Australia are far more likely to take cycling or walking trips if there are various points of interests along the way, solidifying the current understanding and assumptions towards how to encourage healthier lifestyle. A better

understanding behind behaviour and motivation helps the design process by providing planners, designers, and clients the reasoning and justification to infrastructure designs, demand management, and risks management, putting the community's needs at the forefront.

Planning in this aspect becomes more "Agile" and flexible, where changes in external circumstances and design requirements can be reflected directly in masterplan designs and directly analysed on-the-fly. With the available data and applications to assist in decision making, planners can create / modify designs and adjust based on performance and constraints alongside the ability to assess

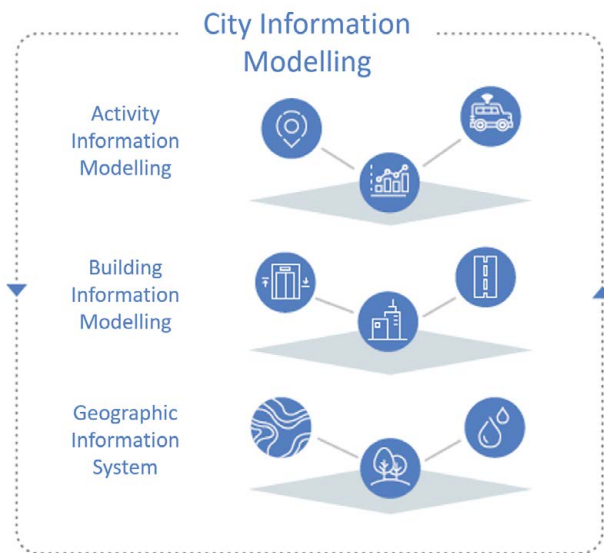


Figure 8. City Information Model (Cavendish et al., 2020)

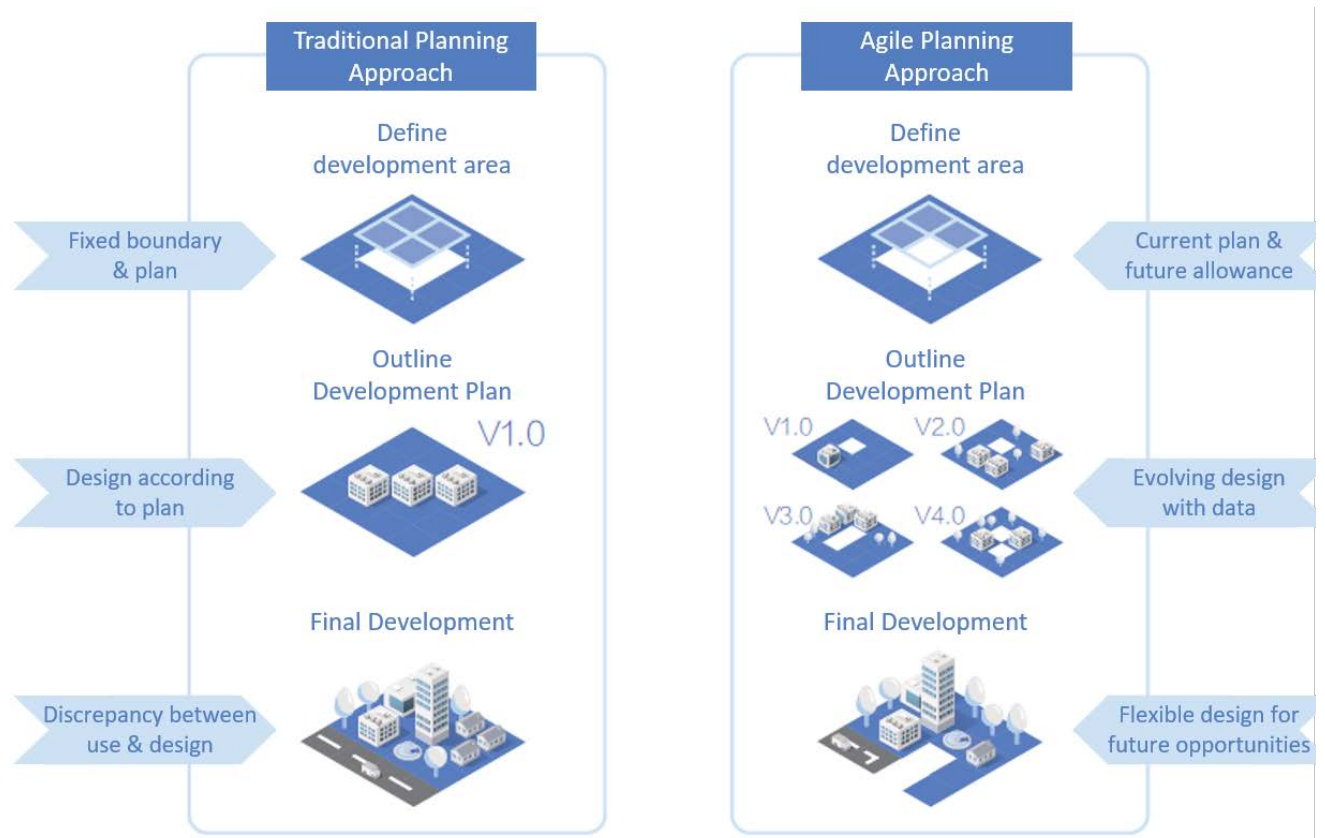


Figure 9. Traditional Planning vs Agile Planning (Cavendish et al., 2020)

the latest designs. A collection of enabling infrastructure aligned with a framework that automatically collects data relating to key performance data and the urban environment that produces dynamic data enables analysis. Planning becomes more “Dynamic” as making use of this dynamic data meant the plans can reflect and adjust based on current and latest conditions of the urban environment. This “Dynamic Planning” approach allows near-instantaneous check of design against acceptable thresholds, provide warning for exceedance, recommend actions, and facilitating swift updates to better reflect people’s expectations, local constraints and opportunities, as well as address key social and environmental issues.

**Case Study (1) – Smart City @Kowloon East**

Dynamic Planning has been advocated by organisations such as the Energising Kowloon East Office in Hong Kong which released five versions of conceptual master plans within

five years in order to reduce the lagging effects of planning (Energizing Kowloon East Office, 2016). As the conceptual plans does not specify all statutory requirements on the onset, it offers planners the freedom and opportunity to explore and collaborate with other professions and stakeholders to influence and formulate final designs while leaving ample opportunities to cater towards future societal and environmental needs. The application of dynamic data complements Dynamic Planning approach, providing evidence of change within short timespans.

Digitisation and open sharing of data benefits not only the planning stage, but also in operational stages of the urban development. The underlying condition for such is that there needs to be appropriate enabling infrastructure planned in advance alongside the physical set-up of the city. Planning for a digital city should begin with “Digital Masterplanning”, where considerations for enabling infrastructure, such

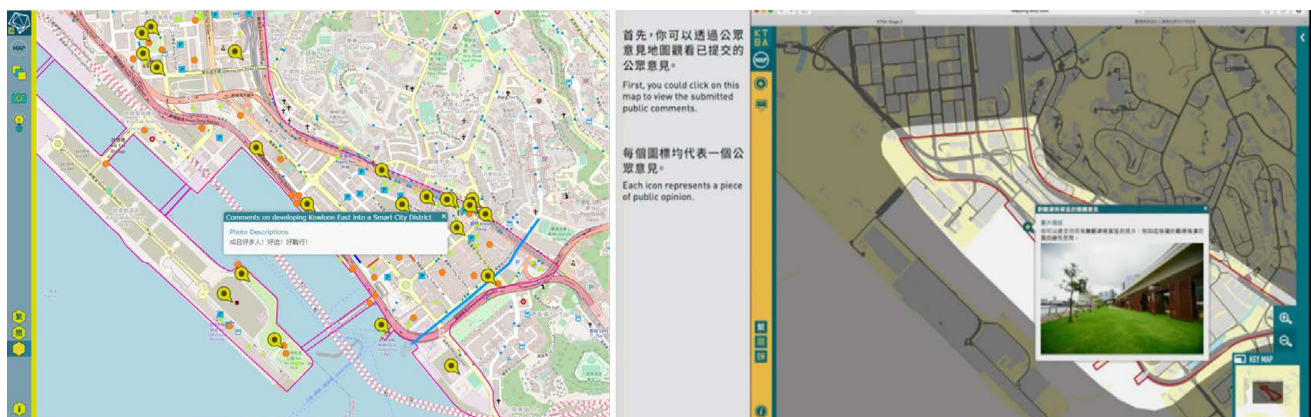


Figure 10. Data Collection via Interactive Maps during Public Engagement Phase for East Kowloon Development



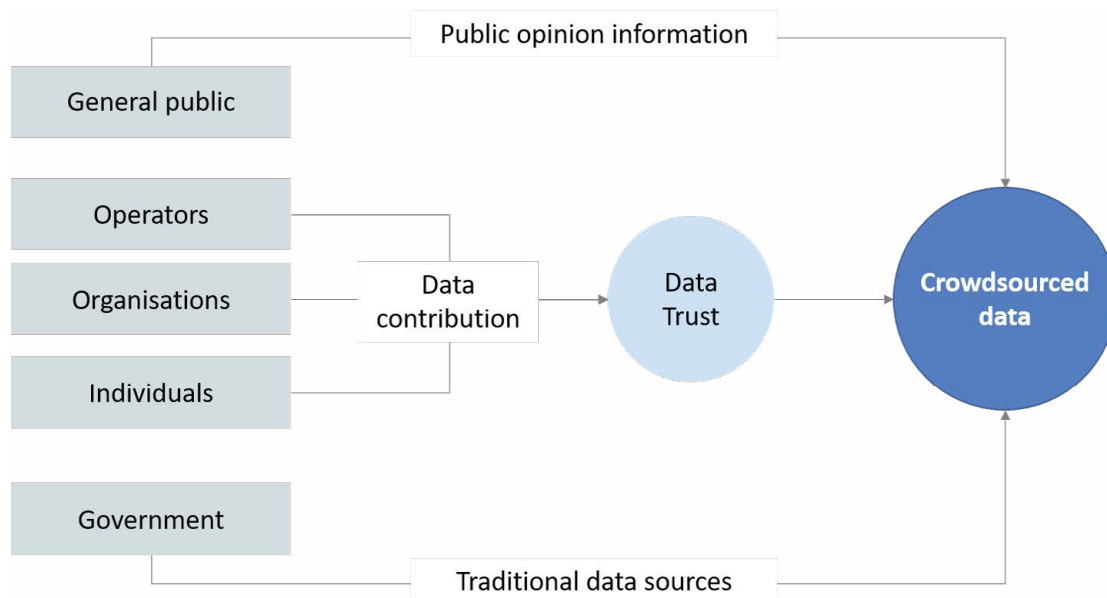


Figure 11. Sources of City Information for Planning (Cavendish et al., 2020)

as facilitating IoT devices and sensors, begins at the beginning of the urban planning process. The Digital Masterplan not only carries out the architectural and infrastructure design of useful urban data, but also clarifies the application, consumption and collection of data.

Through observation and data collection, Planners can judge and balance potential environmental benefits and impacts with social and economic outcomes. With land being a valuable and limited resource in metropolitan areas, the data collected becomes the justification towards planning actions. Data can reveal the deficit in the environment, such as lack of open space being identified through data leading to the planning decision to prioritise open space in upcoming developments. But data can also solidify a decision, such as certain landscape designs being supported

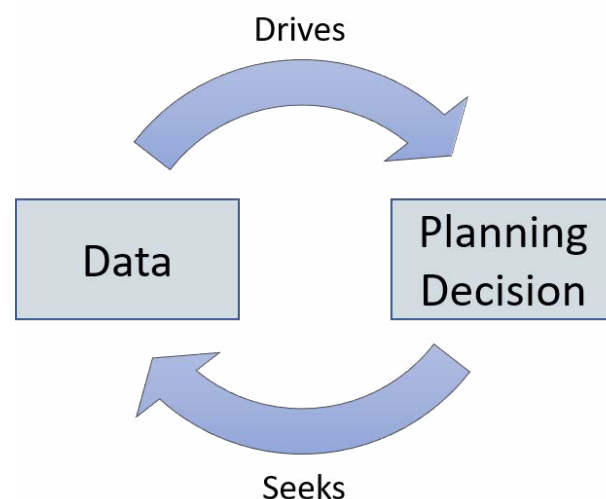


Figure 12. Relationship of Planning and Data

by the public's opinion. Aligning the planning decisions with data meant decisions are made based on existing data. However, aligning data to planning decisions meant trying to determine whether our planning decisions will make a positive impact or will it lead to negative responses. In this sense, the data provides planners with a means to monitor and track the citizen's actions and reactions towards and within the urban environment.

**Case Study (2) – Common Spatial Infrastructure – Built Environment Application Platform, (BEAP), Hong Kong**

To tie in with the CSDI initiative of Hong Kong, the development of Built Environment Application Platform (BEAP) is an essential component to support the use of spatial data in built environment applications and various planning tasks. The BEAP would be an integral component of the CSDI which is targeted for full operation by end 2022. From the operational perspective, the BEAP is similar to a ‘Kitchen’. By tapping data and services from the CSDI (which is akin to a one-stop ‘Supermarket’), the BEAP turns the raw materials (i.e. spatial data) into value-added solutions (i.e. applications to support built environment planning) for shared use by various government units, and in a wider context, to enable cooperation and co-creation

with the business sector, academia and the public.

To examine the feasibility of setting up the BEAP, a multi-disciplinary team involving planners, experts on application development and overseas consultants from 2018 to 2020. The study has not only proposed an overall development framework guiding the progressive development and implementation of the BEAP, but also recommended 30 ‘Proof of Concept’ (PoC) built-environment related applications covering different thematic areas including ‘Planning and Landuse’, ‘Infrastructure and Engineering’ and ‘Landscape, Environment and Conservation’ which would facilitate decision making in the planning process and improve the daily operation of the Government. In particular, 10 PoCs were further developed



Figure 13. Creation of a Co-operate, Collaborate and Co-create Ecosystem through CSDI and BEAP (Planning Department, 2020)

into prototype applications. Among them, three prototype applications, namely 'GIC Facilities and Open Space Analysis', 'Site Search' and 'Visualization and Analysis of Urban Green Infrastructure', were chosen as 'Quick-win Projects' for implementation in the short term based on the following criteria, namely (a) whether the applications could promote and foster collaboration among Government bureaus and departments, business, academia and the public; (b) whether expertise and specific knowledge are required to understand and operate the applications; and (c) whether the required data and technologies are available to support the operation of applications, etc. The BEAP received the Grand Award at the International Society of City and Regional Planners (ISOCARP) as well as Smart City Asia Pacific Awards by International Data Corporation (IDC) in 2020.

### The Way Forward

The evolution of technology brought about a change in the way data can be collected, disseminated and used. Planning data is no longer restricted to traditional, static, and sometimes outdated datasets available on the public platform. Rather, spatial data is becoming more easily accessible with standardisation of data format and quality. Spatial data, such as

maps, evolved from being used as a source of background information, to visual backgrounds for supporting designs, and now imported into GIS for analysis of the urban form. What used to be line drawings of streets and building plots are transforming into 3D models that users can interact with in the real world using mixed-reality technology.

To unleash the full potential of data, there needs to be a reestablishment to the role of urban planning in the reallocation of spatial resources, where the support from spatial city data forms evidence-based decisions to support the decision-making process. Cities should adopt a systematic approach towards collection of city operational data for analysis of the cause and effect between planning and design decisions with behavioural changes in order to make the best use of quantitative key performance indicators rather than abstract planning principles or norms as a measure of quality for urban planning.

While technology for digital transformation is already available, building a complete and modularised digital architecture is essential towards digitising city planning and management. The foundation of data-driven planning comes from well-established data infrastructure with supporting digital application

# 30 Proof of Concepts

Planning & Landuse	Infrastructure & Engineering	Landscape, Environment & Conservation	Others
<ul style="list-style-type: none"> <li>(1) GIC Facilities and Open Space Analysis*</li> <li>(2) Site Search*</li> <li>(3) Landuse Monitoring and Analytics*</li> <li>(4) Scenario Generation for Planning and Development*</li> <li>(5) Connectivity Analysis*</li> <li>(6) Preliminary Technical Review – Traffic</li> <li>(7) Preliminary Technical Review – Hazard</li> <li>(8) Parametric Toolkits for Masterplan Evaluation</li> <li>(9) Urban Renewal Assessment Tool</li> <li>(10) Development Tool for Visualization of Government Information in AR/VR Environment</li> <li>(11) e-Engagement Tool</li> </ul>	<ul style="list-style-type: none"> <li>(1) Compliance Checking of Building Plans*</li> <li>(2) Visualization and Analysis of Underground Space and Utilities*</li> <li>(3) Visualization of Existing and Planned Development and Infrastructure Projects</li> <li>(4) Preliminary Technical Checking – Sewage</li> <li>(5) Preliminary Technical Review – Drainage</li> <li>(6) Work Site Inspection (Engineering)</li> <li>(7) Work Site Inspection (Site Safety)</li> <li>(8) 3D Visualization of Existing and Planned Developments using VR/AR</li> </ul>	<ul style="list-style-type: none"> <li>(1) Visualization and Analysis of Urban Green Infrastructure*</li> <li>(2) Preliminary Technical Review – Noise</li> <li>(3) Preliminary Technical Review – Air Quality</li> <li>(4) Preliminary Technical Checking – Air Ventilation</li> <li>(5) Work Site Inspection (Environmental Compliance)</li> <li>(6) Assessment on Green and Blue Provision</li> <li>(7) Community Resilience to Climate Change</li> </ul>	<ul style="list-style-type: none"> <li>(1) Workflow Management Platform*</li> <li>(2) Built Environment Information Dashboard*</li> <li>(3) Automatic Notification of Data Updating City Management Tool</li> </ul>

\*Selected for prototype development

## 10 Prototypes



QR code to youtube video on 10 user cases for BEAP for detailed illustrations.

Figure 14. Development of 30 PoCs and 10 User Cases for BEAP (see <https://www.youtube.com/watch?v=YuwbFOQGhOg> for more illustration of each user case)

scenarios and the underlying enabling infrastructure. Data, network, computation, service, and application layers having their respective place but with the flexibility to individually cater to specific city needs, user requirements, and technological advancements.

As urban planning is never a standalone process, this concept extends towards planning in the digital age. Data has become a commodity that is no longer solely owned by the government, rather they can be held by different players within the city. Different data collectors and owners will focus on what they deem to be “important”, collecting data that aligns with their interest and disseminating to those that they see will benefit. Collaboration between data owners and institutional setups is crucial to sustain interest of data users and contributors. While data may be important but similarly is data security and data privacy. Apart from protection against misuse of data, verification of data source to ensure data accuracy and accountability is needed as errors or misrepresentation of real-world events through data will have knock-on effects.

With the digital age, planning has become a dynamic process, where planners take near real-time data to make decisions on the design and where the design, through the use of

analytical software, can generate reports to aid planners and justify planning decisions. Future planners no longer only work with static rules and norms but will need to become familiar with available city datasets, data analytical methods, data visualisation and presentation, to appropriately apply their knowledge. For example, planners currently make ample use of GIS for spatial analysis and visualisation, though the use of immersive technology makes communicating planning designs to non-technical audience easier and allows designs to be experienced in a virtual environment. Virtual Reality simulates the full experience while Augmented Reality projects information and design into the current physical environment, both renders the planners’ vision to reimagine the space.

Connection between the digital city—the Digital Twin—and the physical world is indispensable, enabling planners to continually refine the city based on the latest evidence. Planning in the digital age means an alignment between the hardware aspects such as physical ICT infrastructure and IoT devices, software in the manner of computer applications and institutional arrangements, and data both static and dynamic, with and without spatial elements.

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# Filling the Gap for an Effective System to Support for a Sustainable Planning of Age-Friendly Community

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## 1. Introduction

The Hong Kong population age structure is expected to undergo a dramatic change in the coming decades. According to the latest figures published by the Hong Kong Government, the number of people aged 60 years or older soars from 26% in 2020 to 40% in 2050 (Census and Statistics Department, 2020), advancing Hong Kong from an “aged society” to a “super aged society”. The tectonic shift in the city’s demographics presents unprecedented challenges to the society, requiring a re-allocation of public resources in response to a declining labour force as well as to cater for the higher demand for elderly services. To embrace these challenges, planners need to maximize

the social utilities to plan for the current and future olds and encourage stakeholders to develop innovative strategies that ensure the adaptability, resiliency and sustainability of our communities and infrastructures for the future population.

One of the most effective ways in pushing the age-friendly city agenda forward is to ensure a standard practice of adopting age-friendly design in all developments. While the WHO Age-friendly City provides guidelines on addressing key factors to promote communities’ age-friendliness, Hong Kong’s high-density urban form increases the difficulty in practical adaptations. Moreover, as noted by Ling and Lee (2019), Hong Kong is caught

in a Catch 22 situation with a Double Ageing challenge – characterized by the simultaneous ageing of the population and the building stock – and the slow urban renewal process. Significant efforts must be made to formulate age-friendly planning practices in accordance with the policy scopes. Without evidential-based criteria and good data analysis to justify for the enhancement of age-friendliness of our communities, there is little scope to promote age-friendly agenda and develop innovative policies to respond to the changing needs of the community under the current planning system.

To advance the cause of an evidential based assessment in the planning for age-friendly community, planners could leverage on sustainability benchmarking. Sustainability benchmarking allows both planners and members of the community to gather appropriate environmental and socio-economic data to plan for a sustainable community. When user feedback and data analytics could be effectively deployed to establish a correlation between age-friendly adaptations and its effectiveness on user well-being, the combined mechanism could become an extremely powerful tool for planners to analyse

the community's existing socio-economic and environmental conditions against credible design standards. This analysis could empower planners with on-trend, local knowledge about the latest design, technology and best practices to champion age-friendly design and create shared value through development planning and community planning. Planners could then collaborate with the social impact investors to devise the necessary strategies and introduce appropriate policy measures and financial incentives to transform existing communities into age-friendly ones.

To illustrate the concept of sustainability benchmarking and its application to the planning of an age-friendly community, the paper will first highlight the importance of credible data and feedback mechanism in the planning of an ageing community. The principle for creating a meaningful sustainability benchmark to create shared value in an age-friendly community would then be discussed. Finally, the paper will conclude by proposing an innovative “double smart assessment mechanism” to generate a high-quality sustainability benchmark to assess and analyse the age-friendliness of the community.

## 2. Importance of Credible Data in Age-friendly Community Planning

Creating shared value in age-friendly initiatives starts with having a common language recognized by different stakeholders. A standard goalpost to age-friendly planning is the WHO Age-friendly City Domains. In 2015 The Hong Kong Jockey Club Charities Trust embarked on an ambitious project to improve the age-friendliness of Hong Kong in response to the ageing population. The Charities Trust commissioned the four gerontology research institutes in Hong Kong to implement the Jockey Club Age-friendly City Project (JCAFC)<sup>1</sup> based on the WHO Age-friendly City framework with the aim of building an age-friendly city which can cater for the needs of all ages. The eight domains cover issues in relation to the **built environment** (outdoor spaces and buildings, transportation and housing), **social environment** (social participation, respect and social inclusion and civic participation and employment) and **community and health support** (community support and health services and communication and information). The data collected from 9,785 questionnaires with the elderly and 739 focus group participants has helped to develop a solid, evidence-based baseline for the 18 districts to

undertake continual improvements to promote an age-friendly city.

Nonetheless, the fact that the JCAFC study is not in the realm of documents that would normally be considered as material to district-level plan making weakens its potential effect in guiding the planning and development of an age-friendly community. Combining this with the knowledge that the needs of the current old will be different from that of the future old makes comprehensive planning even more difficult. Under the current planning system, planners are often involved in the development planning stage only and tend not to have a role in monitoring and evaluating the long-term impacts of the community resulting from the development. The set-up makes planners less responsive to forecast for how the community would evolve and prepare for changes in priorities of services to tie in with the forecasted changes, especially when the community matures and has emerging community needs that requires a strategic remodelling of hardware and social infrastructure to support the ageing population. Besides increasing awareness of the JCAFC project among the planning community, it is important for planners to get hold of big data, especially in terms of how the demography

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1. JCAFC Project started in 2015 and is concluding in Q4 2021 (delayed due to COVID).  
More information about the project here: <https://www.jcafc.hk/en/About-Us/Project-Overview.html>

changes overtime, community feedback, arising community needs and requirements and emerging trends in built environment and real estate sector to appreciate where planners can play a role in encourage relevant stakeholders to consider age-friendly practices under the eight domains to plan and implement a more age-friendly, sustainable, liveable and resilient community. This is where the sustainability benchmarking as a dynamic mechanism will fill the gap and complete the feedback loop to support for a sustainable planning of age-friendly communities.

At the micro level, improving the quality of our building stock and adaptive reuse will make a significant difference to the quality of life of our elderly. This is especially critical to those most affected by effects of double ageing, i.e. elderly living in dilapidated buildings in the old urban core. The short tenancy cycle in buildings coupled with the various restrictions on the usage of maintenance fund set out in the Building Management Ordinance has discouraged individual property owner in setting aside a large pool of capital improvement funds to upgrade the physical and social infrastructure in the community, especially when these upgrades involve high initial cost

and long payback. While we know that there are about 5,300 “3-nil” buildings in Hong Kong and 65% of them are located in the urban old core (HKSAR Government, 2019), these figures alone are not particularly helpful in helping built environment professionals to assess, prioritize and pinpoint interventions to increase the quality of life of those living in the ageing building stock. More in-depth information about the existing condition of the built environment and their building management practices will add significant value in helping planners and other built environment professionals to strategize on the upgrade of infrastructure and management practices to support the residents to age in place. With a credible third-party assessment system coupled with a fully automated online platform, information on social sustainability and environmental resiliency of a built environment can be easily teased out and analyzed to support strategic development. Big data and analytics could bring a revolutionary change to promoting age-friendly practices in existing building retrofitting projects and creating a more equal distribution of resources from a strategic planning angle.

### 3. Sustainability Benchmarking: From Static to Dynamic

“What gets measured gets managed”  
 – Peter Drucker, Management Consultant

Sustainability benchmarking is not a new concept for built environment professionals. In fact, the concept has been widely adopted by built environment professionals as a means of evaluating and communicating the project’s environmental and socio-economic impact to tenants and residents. However, most sustainability benchmarking only captures information at a set time period and often lags behind in understanding the needs and

concerns imminent within a community in a rapidly changing society.

One of the most extensively adopted benchmarking tools in Hong Kong building and planning industry is the BEAM Plus Assessment Tool. The tool is a performance standard that enables built environment professionals to assess the environmental and health performances of buildings and communities and understand the environmental and socio-economic impact generated under a set of evidence-based criteria. As depicted in Figure 1, the tool provides comprehensive set criteria for a wide range of sustainability issues relating

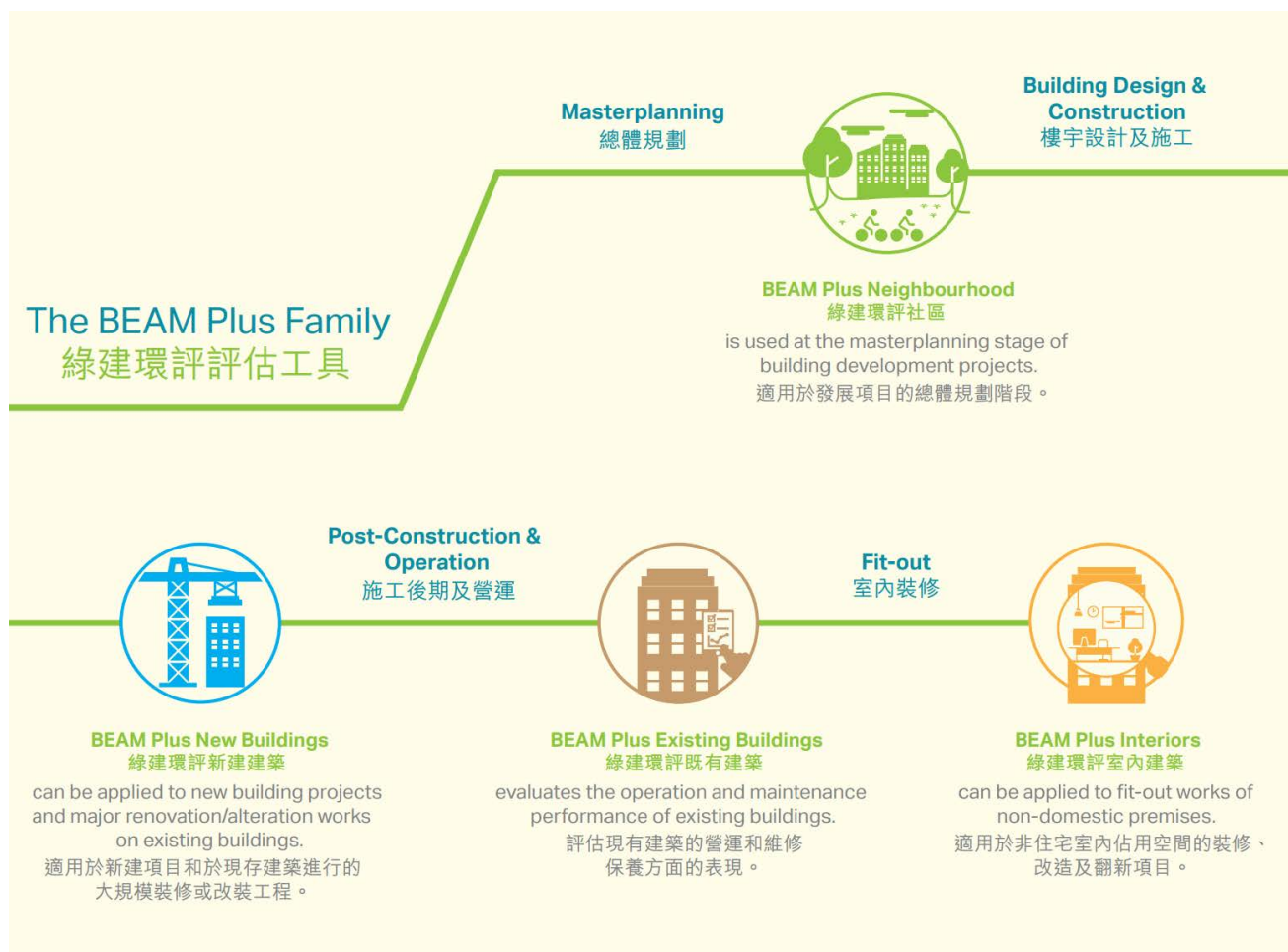


Figure 1. The BEAM Plus Family (Hong Kong Green Building Council, 2019)

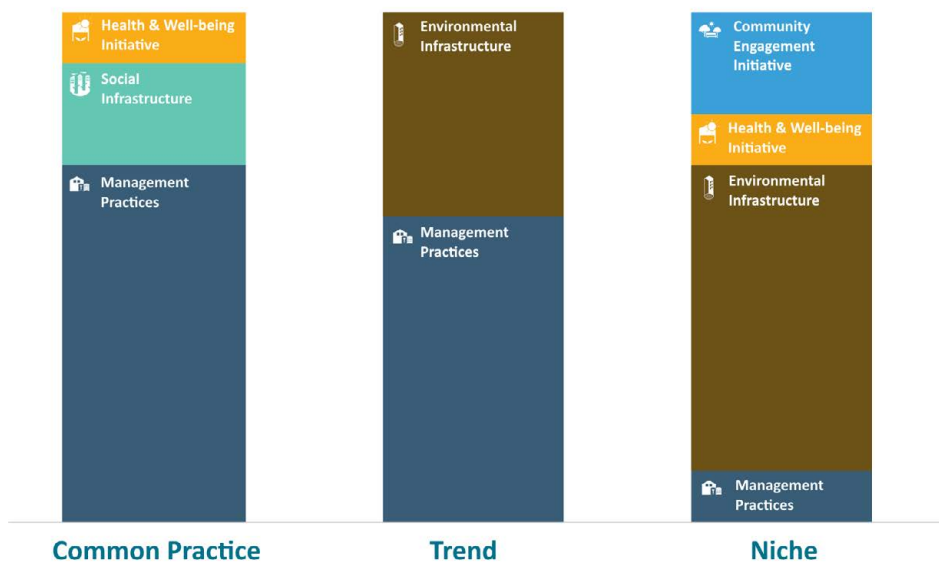


Figure 2. Analysis of Common Practices, Trend and Niche in Community Improvement Measures

to the planning, construction, commissioning, management, operation and maintenance of a building (Hong Kong Green Building Council, 2019).

Targeting on effectively identifying the necessary infrastructures and practices to enhance social innovation and environmental sustainability within a community, BEAM Plus highlights social, environmental and economic issues that are relevant to the sustainable development of age-friendly communities. Through a comprehensive assessment of the different building infrastructures within the community, BEAM Plus assessment can map out the progress and trend of developers and asset managers' in adopting age-friendly practices and presenting a holistic view for planners to understand the pressing issues within the community.

In fact, BEAM Society (BSL) and Hong Kong Green Building Council (HKGBC) have been advancing such causes over the past years. Together, the two organizations have conducted BEAM Plus assessment to almost 200 existing buildings in Hong Kong in the past year. The assessment evaluated the sustainability performances and management practices of existing buildings and ageing communities. A summary on the top ten common practice, trend and niche has been compiled based on the assessed result of these 200 existing buildings and is shown in Figure 2.

The dataset reveals information on best social and environmental practices currently being adopted by existing buildings and their surrounding communities. First, the majority of the existing buildings in the dataset are subscribing to good management practices to ensure the long-term adaptability of their

built environment. To achieve an even higher score in the assessment, buildings will also enforce a building maintenance programme on a regular basis to ensure the building meets statutory requirements. Second, a proportion of the buildings will include environmental infrastructures to tackle the sanitation issues arising from building operation. Waste recycling bins and/or dedicated waste sorting areas are provided in some of the participating buildings to ensure the environmental sustainability of existing buildings. Third, few buildings in the dataset introduce community engagement initiatives into their buildings as a means of soliciting the tenants' views towards building a better community. However, it is unknown whether there is any follow-up mechanism that ensures the tenants' views are appropriately attended.

Although the sustainability practices-focused dataset provides just a snapshot of the environmental and social conditions in existing buildings and ageing communities, the tool provides a reasonable analysis on the opportunities arising from effective management in the community. In addition, the dataset supplies planners a glimpse of the market gap and niche for age-friendly infrastructure upgrades and practices, such as smart homes, public space upgrades to meet

health and well-being objectives and utilization of spatial and modelling data to manage built assets. It steers planners into the direction of placing more emphasis on environmental and social sustainability in the future transformation of community into age friendly ones.

Still, the solution to driving real transformation to an age friendly community requires more than just a snapshot assessment. It requires the creation of a common framework that enables planners, property owners and tenants to partner together to create shared value within the community. Moreover, it needs to include a mechanism that enhances governance, which includes the enabling of a dynamic communication channel between stakeholders and planners that allows for both parties to monitor the progress with the community and make contribution to the development of the community through community planning. A credible and dynamic benchmarking system involving the participation of different stakeholders in the community will be the key to enabling planners to introduce policy that best matches the priorities for improving the social and environmental well-being of the ageing population in the community.

#### 4. Creating Shared Value and Meaningful Feedback in Sustainability Benchmarking

The benefit of a credible and dynamic benchmarking system goes beyond a common framework for policy analysis. It can serve as a powerful tool to empower property investors and asset managers in identifying the challenges and opportunities for driving age-friendly infrastructures and programmes in their built assets, especially if these practices would generate a good social return on investment score and allow them to better communicate the value of the corporation's work in the community. Since property investors and asset managers usually have the ability to undertake asset risk in longer terms, the business operational model shed light for planners and financial institutions to partner together in introducing innovative financing programmes to stimulate property investors and asset managers in adopting infrastructures and programs that bring positive social outcomes to the community.

This is where constant feedback from the community within the sustainability benchmarking mechanism proves itself to be effective in creating shared value. Sustainability benchmarking could serve as a vehicle to validate the social and environmental outcome of age-friendly infrastructures. It allows different parties to constantly gauge on the sustainability

performances of their community and to quickly incubate and/ or introduce market-ready solutions to enhance the age-friendliness of the community. It also provides residents and tenants a pragmatic vision on how age-friendly infrastructural improvements could be adopted and rolled out in the community and benefit them as users. A common consensus on the sustainable impacts of the infrastructural improvements assures planners and investors' decisions in social beneficial projects.

The fact that sustainability benchmarking has already been adopted by numerous property investors makes it an effective means for standard setters to marry age-friendly practices into existing sustainability benchmarking standards and innovate new ways to embed more age-friendly practices into the scheme. The inclusion of age-friendly practices into sustainability benchmarking would certainly be a powerful instrument to empower property owners and asset managers in considering age-friendly practices and creating shared value that benefits the wider community.

The Global ESG Benchmark for Real Assets (GRESB) provides real asset investors with actionable information and tools to monitor and manage the Environmental, Social, Governance ("ESG") risks and opportunities of their



investments, and to prepare for increasingly rigorous ESG obligations (GRESB, 2020). GRESB has a catalogue of environmental, social and health & well-being criteria that would oblige asset managers in taking the appropriate actions to create a social cohesive community. The asset managers would have to comply with these criteria and report their progress to GRESB annually to fulfil their due diligence.

This is where the opportunity lies for leveraging the sustainability benchmarking mechanism to promote age-friendly adaptations and practices. Instead of focusing on short term performances, the asset managers need to withstand financial scrutiny from shareholders by looking at the improvement of age-friendliness of their developments and assets and assessing their long-term societal value. Establishing an effective sustainability benchmarking tool helps developers and asset managers to look beyond the traditional benchmarking and their “business-as-usual” development model. Developers and investors are increasingly moving towards creating shared value in their business strategy and subscribe to a “business-as-mutual” development model that considers the socio-economic needs and aspirations of their residents and users when introducing policies to manage their built assets and

communities.

Moreover, sustainability benchmarking provides a common standard for tenants who lack professional knowledge on building management to self-assess on issues surrounding the environmental sustainability, social servicing, and health & well-being of their buildings. The self-assessed result enables both the building owners and professionals to establish a common dialogue on these issues and to facilitate professionals to prioritize on maintenance plans and servicing works that are imminent to the long-term sustainability of the community. This mechanism allows management resources to be allocated appropriately for ageing buildings and to minimize the possibility of building dilapidation resulting from the lack of proper management and maintenance. Ultimately, instead of acting on goodwill, the benchmarking mechanism will encourage planners and asset managers to adopt age-friendly practices in the design, implementation, management and maintenance operations as a standard practice and push for excellence, further promoting systemic change.

However, questions come along with the opportunity. What is a meaningful measurement? How can the accuracy of the measurement be improved to facilitate

better decision making on improving the age-friendliness of the community? How can data be better visualized for different stakeholders to draw a common analogy to the age-friendly challenges within the community?

To answer these questions, it is crucial for the sustainability benchmarking to be human-centric to foster efficient adaptation by both the built environmental professional and members of the community. The individual criteria going into the assessment tool would also need to be investigated thoroughly against research and theory and be pilot tested against the conditions within an existing community to ensure that the criteria can adequately benchmark on genuine issues within the community. The “Double Smart Assessment Mechanism” coupled with a robust online platform could be a probable solution in achieving this objective.

## 5. Applying a Double Smart Assessment Mechanism in Analysing Age-Friendliness of A Community

With an aim to create a robust sustainability benchmark to assess on issues pertinent to age-friendliness in the community, JCDISI is developing a “Double Smart Assessment Mechanism” to enable key stakeholders to assess the age-friendliness of the community. Design thinking has been adopted in the tool development process to ensure that the assessment tool could appropriately understand its user, challenge assumptions and redefine problems in an attempt to identify alternative strategies and solutions that might not be instantly apparent with our initial level of understanding (Dam and Teo, 2020). Based on the concept of design thinking, an eight-phase development approach as shown in Figure 3 will be adopted with an objective to safeguard the materiality, consistency and compatibility of

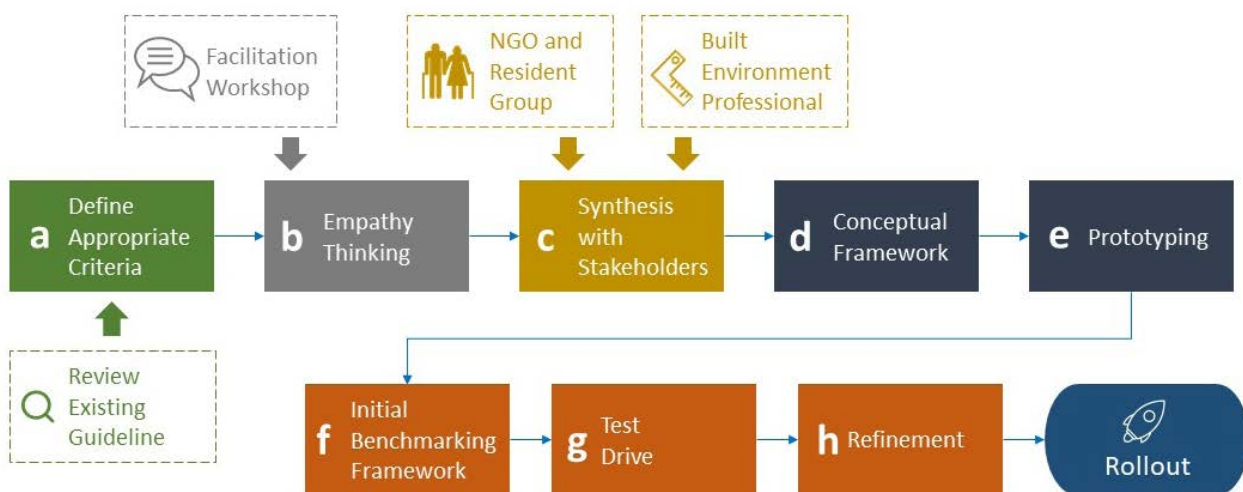


Figure 3. Double Smart Assessment Mechanism

the assessment tool:

**a) Define Appropriate Criteria – Identifying**

**Age-friendly Interventions:** Desktop research was conducted by JCDISI to identify existing frameworks that address age-friendly built environment design considerations, classify the age-friendly issues that matter most to the community and determine the appropriate best practices to tackle on the age-friendly issues. The desktop research is cross-referenced against the WHO Age-friendly City

Guidelines, standards, design guidelines and appropriate targets under the corresponding SDGs, currently elderly policies and Smart City and Smart Ageing initiatives and programme to ensure a balanced benchmarking between essential issues to the elderly and innovative solutions for the community. The draft assessment indicators compiled provides a quick summary of possible age-friendly benchmarking criteria that could be adopted in the Double Smart Assessment Mechanism.



*Image 1. JCDISI x HKIP Community Planning Committee x BEAM Society Facilitator Workshop*

The draft assessment indicators list was also sent to the four ageing institutes, ten NGOs and elderly volunteers to provide initial feedback on whether the criteria is material to the elderly and whether the criteria could produce a comparable level of information amongst different stakeholder groups for monitoring and

evaluation of initiatives.

**b) Divergent Thinking – Capacity building through Empathy Mapping:** A three-session facilitation workshop series was carried out to impart HKIP Community Planning Committee



Image 2. S11 Community Planning in an Age-friendly Community Co-creation Process

members with design thinking knowledge to co-create a new community planning model with JCDISI. In addition to helping the team appreciate the pain points of our elderly users in carrying out their daily chores, the goal of the workshops is to help the team appreciate the technical gap and skills gap in addressing and, thus, improving the age-friendliness of our communities (shown in Image 1). The “train-the-trainer” session involved carrying out user journey mapping exercises with the elderly to understand the community requirements through empathy building. This process highlights how planners can help prepare for changes in a community, such as demographic changes and emerging community needs, to increase community resilience and support ageing in place. It also sheds light on how sustainability benchmarking could play a role in developing planning, especially in monitoring changing needs and responding to the changing needs in a more insightful and foresightful manner.

**c) Convergent Thinking – Synthesis with Stakeholders:** The success of a sustainability benchmarking tool lies on the active participation and quality input from key stakeholders. Through the cross-sector,

cross-disciplinary “train-the-trainer” co-creation workshops, JCDISI encouraged the co-creation teams to tie the WHO Age-friendly City domains with Sustainable Development Goals (SDG) 3 on Good Health and Wellbeing, 9 on Industry, Innovation and Infrastructure, 10 on Reduced Inequalities, 11 Sustainable Cities and Communities and 17 on Partnership in Goals and to flesh out innovative ideas to improve the age-friendliness of our city through community planning. As shown in Image 2, around 50 participants from different sectors and backgrounds joined the design thinking-led workshops to develop prototype hardware and software solutions to improve the quality of life and wellbeing of our elderly population. Elderly representatives were invited as “user experts” and provided feedback to the co-creation teams on whether they feel their solutions would be useful in addressing their pain points/ issues that they experience in their daily lives through the “world café” arrangement. Aside from the refinement of the tool, this process is a key in building participants’ capacity. This process champions design thinking in age-friendly community planning and secures stakeholders’ support on developing the double smart assessment mechanism.

**d) Conceptual Framework:** With the completion of S11 Community Planning in an Age-friendly Symposium, the conceptual framework is being furnished based on the feedback from various stakeholder groups. In parallel, JCDISI and BSL will collaborate to develop the technical assessment framework for retrofitting existing buildings and the built environment to improve the age-friendliness of the community, especially in housing estates with an ageing population. The conceptual framework will enable the benchmark designers to undergo a first alignment of the sustainability benchmark and to enable them to sort out the necessary criteria that are material in creating an age-friendly community.

**e) Prototyping – Knowledge Sharing and Know-how Transfer:** With the conceptual framework in place, the benchmark designers would apply the benchmarking tool in a selected community. The prototyping process will be led by a group of young community planners, who will act as an agent to facilitate the elderly in understanding the criteria laid out in the sustainability benchmark and to guide them into using the tool to express their needs and concerns in the community. Data will be collected during the prototyping process to

identify whether the information requested by the benchmark is consistent amongst different users.

**f) Initial Benchmarking Framework:** An initial benchmarking framework will be developed based on the feedback received from the prototyping. The criteria of the benchmark shall now align with the interest of different parties and be compatible for the non-planners to undertake the assessment of their community without the assistance from planners and other built environment professionals.

**g) Test Drive:** JCDISI will carry out more “train-the-trainer” sessions to advance young built environment professionals and NGOs knowledge in carrying out assessments. The highlight of these sessions includes coaching elderly users to use the sustainability benchmark and to conduct the assessment on their own. The result of the benchmark shall be sufficient for planners and other built environment professionals to identify the actual needs and concerns within the community. It should enable them to set appropriate improvement targets and decide on the priorities of improvement works within the communities.

**h) Refinement – Scaling Up and Championing Age-Friendly Planning:** The assessment tool will undergo a final realignment of criteria before a formal roll out to the public. Afterwards, the assessment tool will scale up and be applied to the assessment of various communities. Working with the professionals in the building industry, an in-depth technical framework will be developed to enable the built environment professionals to apply the appropriate age-friendly architectural and policy treatments based on the feedback of the assessment undertaken by the elderly and NGOs in the community.

***Enhancement of Data Quality with Online Platform***

Besides developing an effective benchmarking tool, a good feedback mechanism for communicating progress and enabling continuous evaluation would be key in motivating asset managers and planners to leverage sustainability benchmarking in promoting age-friendly adaptations and practices. Therefore, convenient access to information, data integrity and data transparency are essential features to support active monitoring, meaningful comparisons of community progress and more effective decision making in managing matters affecting the well-being of the local community.

Online platforms could enhance transparency in sustainability benchmarking, in particular in the quality data collection and ensuring effective analysis. A fully automated online platform could increase efficiency, enhance consistency and reduce human dependence during the data collection process. It could provide complex data analysis and draw correlations to age-friendly issues common to the community. The complex data analysis through the automated online platform will support planners to make better judgement of the merits and pain points surrounding the age-friendliness of the community and to enable them to introduce policies and targets more effectively. Moreover, the capability of a common data environment in an online platform could enable data to be shared across multiple online platforms. The sharing of data enables stakeholders with different background to collaborate together to derive a common metric to enhance the general understanding of age-friendly issues material to the sustainable development of the community.

Two different online platform interfaces are shown in Figure 4 and Figure 5 respectively. Both online platforms enable users to report on their sustainability progress to a third-party validator through a standardized template. With the assistance of advanced data analysis in the computerized system, third-party validators

can validate the accuracy of the reported data and summarize the reported data for reporting. Analytics and data visualization plugin will solidify all reported data and produce interactive charts that enable different stakeholders to visualize the progress of different age-friendly initiatives.

The power of the online platform could be further enhanced in future to enable community data to be processed at a quicker pace and to allow planners to grasp on the latest spatial information and services on ageing community. Figure 6 depicts some of the enhancement possible within an online platform, which includes developing plugin for community planners to architects to extract metadata in plan submission for sustainability benchmarking, adopting artificial intelligence to validate the authenticity of the community data and utilizing advanced analytics to better visualize information that are critical to the existing conditions of ageing buildings and ageing communities. The data analytics coming from these online platform enhancements would enable planners to identify the real needs with a rapidly changing community and to formulate the appropriate policies and strategies to achieve long-term social sustainability and environmental resiliency within the community. It fully aligns with the Government's policy objective in developing a common spatial data

infrastructure portal to contribute to a smarter and sustainable Hong Kong and enhance long term community planning.

## 6. Way Forward

The United Nations introduced the 17 SDGs in 2015 as a blueprint to achieve a better and more sustainable future for all by 2030. These goals challenge humanities to derive solutions that would ensure a more equitable development and environmental sustainability. The transformation of more communities into age-friendly ones in Hong Kong is a giant step towards fulfilling this goal.

In light of this, it is imperative for the society to develop the necessary policy, plan and strategy to enable communities to migrate into age-friendly ones at a sustainable pace. Sustainability benchmarking is certainly a key for enabling planners to understand the social, environmental and economic challenges in creating an age-friendly community and allowing them to introduce the right policy to meet these challenges.

While there are several benchmarking systems that promote environmental sustainability, social cohesion and health and well-being in the built environment, none of the current benchmarking systems could fully attend to the shifting demographics from "aged society" to



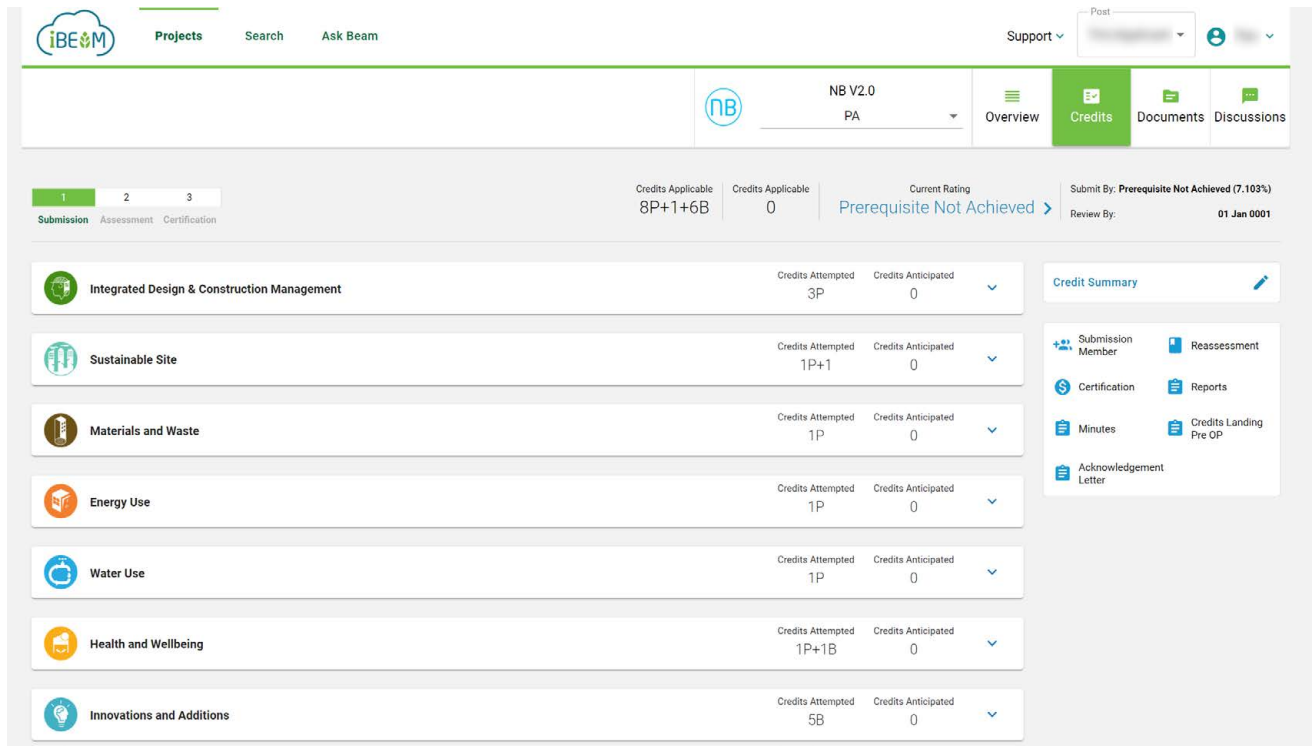


Figure 4. iBEAM Project Management and Sustainability Data Tracking Platform (BEAM Society Limited, 2021)

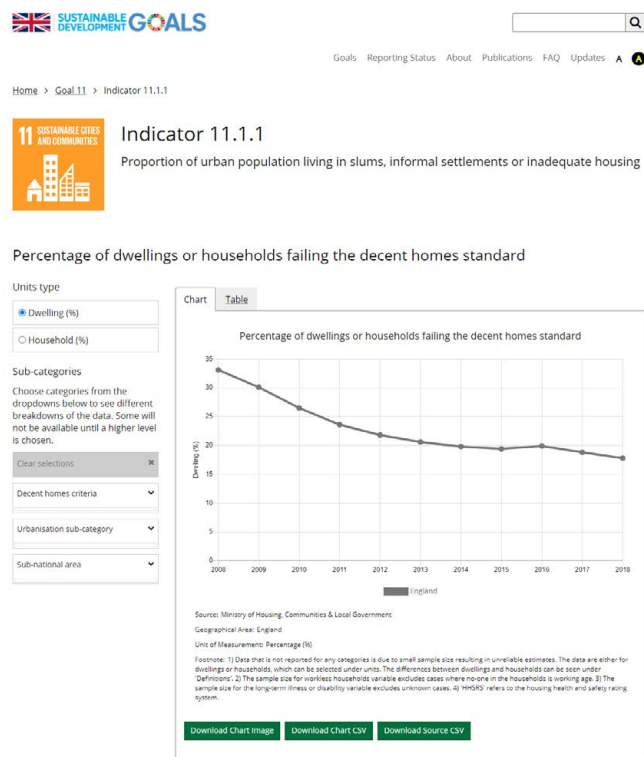


Figure 5. Online Platform that Discloses The U.K. Progress on Sustainable Development Goals (U.K. Indicators For The Sustainable Development Goals, 2021)



1. Adopt **natural language processing** and **artificial intelligent** to validate the assessment information.



2. Develop plugin to extract **metadata** from **BIM** and **GIS**.



3. Create **open data source policy** that enables **data sharing** between iBEAM and other electronic platforms.



4. Expand the use of **data visualization** and **advanced analytics** to analyse information critical to the built environment.

Figure 6. Possible Enhancement on The Online Platform to Cope with Sustainability Benchmarking

a “super aged society” and the rising demand for age-friendly services and infrastructure in the community. To bridge the gap between sustainability benchmarking and age-friendly community, it is necessary for the benchmark designers to draw reference against the criteria in existing tools that refer to the local built environment like BEAM Plus, align these criteria against the interest of the community and innovate a new set of benchmarking criteria that are user-friendly and human centric for stakeholders in the community to freely express their aspiration for the community. The provision of an online platform could complement sustainability benchmarking by empowering members of the community to express their needs and concerns on their buildings and communities, asset managers to detect social and environmental issues in their managed buildings and communities,

planners to introduce the appropriate policy and infrastructure changes for the community and social impact investors to channel funding to community infrastructures that create positive impact. This solution is a quick win for all stakeholders in the community.

However, the creation of a human-centric sustainability benchmarking tool is not a simple task. It requires the benchmark to draw a common understanding from different user groups and pinpoints to issues that are prevalent to the needs and concerns of the ageing community. Moreover, the assessment criteria will need to be pragmatic in such a way that enables market leaders to progressively introduce age-friendly infrastructures into the community and to enable planners to set forth the appropriate target, goal and policies to migrate a typical existing community into an age-friendly community. To achieve these objectives,

it is imperative for community planners and other built environmental professionals to take a central role in understanding the needs of the community and setting evidence-based criteria into the benchmark.

The creation of sustainability benchmarking has never been more important than now. Planners, built environment professionals, NGOs, elderly residents and any other stakeholders in the community should act now in contributing the necessary criteria that would enable different communities to uptake an innovative approach to transform ordinary communities into age-friendly communities.

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# Planning for Sustainability via Co-creation with the Community: How Might the Social Lab's Co-Creation Method Work in Hong Kong?

Hermion Au, Henry Kan and Ada Wong on behalf of MaD

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## WHY social labs?

Community engagement, as a core part of the decision-making process, is very important and cannot be ignored, in particular in planning and infrastructure projects. However, decision makers are used to traditional consultation methods such as papers and large-scale seminars. They are less certain about co-created community engagement. On different occasions where the Make A Difference team interacts with them, we

know they want to try something new but often lack the methodology and co-creation mindset to experiment on different forms of engagement. Some are worried the more engagement one does, the more diverse community views could become.

At the Make A Difference Institute (MaD), we have tried to use Social Labs to respond to the above pain point. We got to know about the social lab process 6 years ago at an international conference

on social innovation. Since then, we have sent our team members to various places including Amsterdam, London, New York to learn about their different social lab practices, and how we could design more effective co-creative processes through numerous experiments and trial and error.

In 2016, MaD received support from the Hong Kong Jockey Club Charitable Trust and launched our social lab initiative, which became the first community-initiated public services innovation lab with its goals to collaborate with government agencies, engage citizens from various backgrounds, and design services and policies for a better public life. Social Lab is devoted to promoting citizens' participation and experimenting with different kinds of prototypes which respond to the needs of the community. The

Lab team does not work behind closed doors but get into neighbourhoods to understand real-life social issues from stories and conversations.

We want to make clear that the MaD Social Lab is not a pressure group but an intermediary, bringing civil society, professionals and government closer together to find innovative ways to tackle pressing social problems. In the last 5 years, we have collaborated with the government agencies such as the Leisure and Cultural Services Department (LCSD), Transport Department (TD), Food and Environmental Hygiene Department (FEHD), Tourism Commission and Countryside Conservation Office (See Figure 1). The Policy Innovation and Coordination Office under the Chief Executive has also joined hands in some of our labs, all to experiment on co-creative

Starting from 2016, the Social Lab has been collaborating with such government agencies as LCSD, TD, and FEHD on the renovation of public services. These public services include, libraries, parks, streets, and markets. Some prototypes, for instance inclusive parks for pets, curated book display, and school precincts, have been accepted by the government for further testing.



Figure 1. Our Past Labs Experience

processes in the delivery of public services.

**In this article, we hope to share with you what is so unique about social labs and how planners could engage in similar practices for better co-created outcomes in planning for sustainability.**

### How do we structure the Social Lab Process?

Following a design thinking framework and an ethnographic approach, the Social Lab team usually goes through **three broad stages** (See Figure 2) in trying to understand, ideate and experiment on prototypes of different issues.

First, we value observations and empathetic listening in our field work. To us, citizens are not passive recipients awaiting information and consultation; rather, they are capable of joining hands with professionals to discuss matters pertinent to their lifestyles. Their stories tell us how people interact with the different policy

areas (e.g., how do they navigate streets in the neighbourhood) and should be given equal weighting to cold statistics.

Second, from there, we use various tools and methods to identify the common themes of problems we heard through the collected stories, and try to generate innovative ideas in response to the problems raised. As it is a “lab”, and just like science labs, we undertake experiments in the form of “prototypes”. This is where we try to find convergence of ideas in a community with divergent views and needs. (Note: Prototyping is a concept in design thinking that refers to a model or an early sample for testing before public launch).

Finally, by experimenting on the prototypes at various sites, the Social Lab team collects feedback from users and civil society groups, and continues to improve the prototype. If funding and time allows, in a period of around




Stage 1	Stage 2	Stage 3
Community Deep Dive	Ideation	Prototyping
		

Figure 2. Three Broad Stages of Social Lab Method

half a year, we might undertake 2 to 3 rounds of prototypes to validate and verify the ideas. Of course, more rounds of testing are better than fewer. After a few rounds the direction of the most workable prototype will have been made clear, and the Social Lab team then compiles a report to the relevant government department as well as to the civil society at large.

MaD is a non-profit organization and intermediary. We will forward our recommendations and advocate for their adoption to the government. However, there are different types of social labs globally. For those that are part of the government structure, for example placed within a mayor's office,

the most effective prototypes might have the chance to be turned into pilot studies with funding so that their viability can be further studied.

With the above lab process, ideas that align with community needs could be prototyped and tested, and the results will be more welcome from the users' perspective.

We believe sustainable city planning begins with hearing the community voice, engaging the community in a co-creation process, and then building the resilience of the community to respond to changes. Perhaps this is not yet the usual practice for planners as current methods



Figure 3. Labbers from a Wide Range of Disciplines Joined the Lab Team in the Healthy Street Lab



aim more at “informing” and “consulting” with formal procedures. Nevertheless, the social lab practice points to a more progressive and effective form of engagement and one that is welcome by the community, young or old.

**During the social lab process, we obviously will encounter issues. Reconciling them is key to strengthening the process-driven approach. We would like to list a few thoughts below for further discussion:**

**1) How do we see users’ “non-professional views” vs professional ones?**

**2) How do we resolve divergent views of users?**

**3) Why is experimentation/prototyping**

**important in planning?**

**1) How do we see users’ “non-professional” views against professional ones?**

The MaD Social Lab is often asked this simple question: can end users really tell us in an intelligent way their views and needs? **In our experience, the “people perspective” is exactly the missing piece in many planning decisions.**

The Social Lab embraces a de-expertised approach on two levels: the formation of the lab team and its engagement with users. We make open calls to encourage citizens (especially the younger generation) from all walks of life to join each lab, and we have never ceased to be amazed **by the synergy and creativity**



*Figure 4. A Lab Team Member having Chats with two Homemakers while Shadowing their Shopping*

**resulting from diversity**, when team members bring their knowledge and skill sets together. Every time we try to build a well-mixed Lab team with various backgrounds, such as the social sciences, urban planning and design, education, public service, business and marketing, just to name a few (See Figure 3). In our model lab team members do have full time jobs or are still studying. They see their role as a way of contributing creative solutions to different issues, and this in itself is civic engagement.

### ***Users' co-creation in the Market Lab***

In 2019, MaD launched the Market Lab in collaboration with FEHD and Aldrich Bay Market was the selected site for investigation into this lab question: how can the Aldrich Bay Market better respond to the needs of the community and become more vibrant?

In the fieldwork stage, the Lab team partnered with homemakers living in Shau Kei Wan to understand their habits of shopping for daily needs. Although shopping and cooking are what we take for granted every day, these experiences differ and the ladies have diverse interactions and relationships with the shop owners. The Lab team came to understand certain mundane yet important aspects relevant to the use of wet markets; for instance, kaifongs'

shopping patterns (kaifong as a Cantonese expression of neighbours or community members) in relation to price, acquaintance with shop owners, and the diversity of products.

The market lab team was often surprised by remarks of the kaifongs (See Figure 4). One lady said, "I will buy the ingredients there regardless of the price if he/she is the shop owner I trusted (信任嘅,再貴都買)". As we listened and dug deeper, what prompted kaifongs to shop there was simply because of the relationship already built with the shop owners over time, and they enjoyed the shopping experience as similar to meeting friends at their daily leisure hour. So community trust and relationships are perhaps as important as, if not more than pricing.

In each prototype phase, we engaged passionate kaifongs to co-create with us and this often results in touching stories. We discovered from the community deep dive that homemakers love to exchange cooking skills with shop owners and other kaifongs. The wet market turned out to be the perfect place to capture such community learning and enhance the richness of public life.

After rounds of ideation together, homemakers and the market lab team came up with a prototype called "Kaifong Cooking Memo"(煮人教路), which promotes recipes-sharing at

two weekend prototypes. After the event, a participant excitedly told us that he was stopped by a kaifong on the streets just to thank him for the lovely and useful recipe she received at the market. He was touched by this encounter as he was having a problem with rebuilding his self-image and dignity after retirement as a chef.

The purpose of the above prototype was to see how social bonding took place and its relationship to the role of public markets. The organic bonding brought us lots of insights. It became apparent that **the value of government markets is not only as places for shopping and consumption, but as places where the community congregates, exchanges skills, and builds trusting relationships.**

We believe this kind of revelation is insightful, as it will reinforce the need for public markets to be placed at the heart of communities as the



Figure 5. Some Initial Road Sign Designs from the Students Responding to their Pain Points

“community’s living room”.

### ***Co-design with children in Healthy Street Lab 2.0***

Another example of engaging children could be found in the Healthy Street Lab 2.0 which MaD collaborated with TD. In this lab, we tried to suggest ways to make school precincts more safe and walkable for students and their families.

First, to understand how children go to school and their pain points, the Social Lab team organised student workshops in a school precinct in Cheung Sha Wan. At the workshop, we gave blank street sign cutouts to the students and asked them to imagine suitable road signs that will enhance their safety (See Figure 5). Some came up with visuals and words asking drivers to slow down, others remind dog owners to remove faeces from the street. Ordinary people, even young children,



Figure 6. Final Design of the Cartoonised School Zone Plate

are capable of design for change as they are the users too.

The lab team presented one of the better designs to TD. It is a green turtle with a pink background next to the word School. We understand TD has agreed to produce several of these and place it at a school precinct in Sham Shui Po to further test its viability and effectiveness.

As one can see from the above two examples, insights from the social lab process are more human-centric, because they are derived from users' views. One therefore should not see them as non-professional but rather as complementary to more standardized approaches. The social lab and design thinking approaches remind us that **one needs to plan**

**WITH the community and not just plan FOR the community.** Giving more time and space for the users' voice is crucial in creating more humanistic innovations that will bring happiness to a community.

## (2) How do we resolve diverging views of kaifongs?

We are often asked about how to respond to the community's polarized views on various issues. Our answer points to two suggestions. First, Social lab is about encouraging experiments. By continuous experimentation and getting feedback one could **find convergence of diverging and even opposing views in the community.** Second, there are tools and methods from social lab practitioners that are useful in arriving at more convergence of views.

And in the process of doing experiments,



Figure 7. Lab Team Understanding the Community's Wishes on the Concept of "Good Markets"

whether it is walkability, public transport planning, playgrounds and public space design or operation of markets, empathizing and collaborating with the users is always important, and empathy and deep listening is perhaps the first step to building consensus.

### **Example of convergence from Market Lab**

One of the key reminders of the Lab team is to ask “WHY” - why they disliked such design, or why they found the design satisfactory. We don’t stop at the ‘what’ nor be complacent with just statistics, e.g. how many people liked or disliked certain ideas. Rather than dividing opinions, it is crucial to find out the principles and rationales behind users’ reactions in order to innovate humanistically.

In the Market Lab, the Lab team hosted workshops to ask kaifongs to imagine what an ideal wet market would look like, in an attempt to reconcile different views in the process of prototype design. Based on their understanding about Aldrich Bay Market and its users, developed in the research stage with site observation and story collection, the Lab team invited kaifongs to identify elements vital to a good market design (See Figure 7). Initially, a vast spillage of benchmarks was listed which were confusing and even conflicting. The workshop helped to overcome this by using various tools, including ranking priorities and asking kaifongs to describe the rationale behind certain preferences. Prioritization of needs is useful in facilitating the formulation of mutually



Figure 8. System Map Linking Relationship between Pain Points in Healthy Street Lab 2.0

agreed-upon design principles.

### **Example from Healthy Street Lab 2.0**

Another methodology is system mapping. In the Healthy Street Lab 2.0 the Lab team used mapping to outline the needs and pain points of different users and considered how different factors and pain points are interrelated, and began to identify the most pressing issues to which our intervention must respond (see Figure 8).

From our story collection, parents obviously view fast-moving cars and kids running across street as the most dangerous. The Lab team also reached out to drivers, many of whom were actually very concerned about unintentionally knocking down school kids. Through system mapping, we realise that the leverage point could be that kids find pavements too narrow and uninteresting and thus they have the tendency to run around and out onto the streets.

**How might we use a kid-friendly and fun approach to street design that would be attractive to children and keep them on the pavement?** There are examples globally to follow, using a play street concept for safer walkability. We have therefore done an extensive prototype to test this idea, and received positive feedback from parents, drivers and pedestrians alike. Sometimes

an alternative and fun way to respond could be in the form of non-confrontational street innovations.

### **(3) Why is experimentation/prototyping important in planning?**

We understand experiments from the context of science. However, prototyping and experimentation is not common in the public sector, and not in community engagement. Moreover, there are standardized planning guidelines in Hong Kong and standardized procedures and designs are not only more efficient but also cost effective. How could this



*Figure 9. The Testing of the Prototype “Ground-level LED Light Strip” in the Healthy Street Lab*

be reconciled in a “social lab approach”?

Every lab project is a social experiment in which we test and validate the ideas and prototypes with users’ (changing) needs, and whether they are better than the current and usual practice. We therefore see the social lab platform as a “safe space” for all stakeholders: civil servants,

ordinary citizens and the lab team to do pilot studies and undertake experiments.

Throughout each lab cycle, we strive not only for physical changes, but also a change in mindset. Experiments enhance our imaginations of public services and that actually bring government and people closer together. The Social Lab, therefore, insists on doing prototype testing on site, even in a relatively primitive manner, like a 1:1 paper model or hand-made mock-up.



*Figure 10. School Kids having Fun at Pratas Street when it was Temporarily Converted into a Play Street*

Unpredictable discoveries can be made through the process of prototype testing.

### **Example in Healthy Street Lab 2.0**

For instance, the “Ground-level LED Light Strip” in Healthy Street Lab was welcomed by old people with spinal disorders as well as the general public who liked the green strip on the ground as most of them lowered their heads, busy checking their mobile phones, while waiting for the light to turn green (See Figure 9)

In another prototype of the Healthy Street

Lab, Pratas Street (a cul-de-sac in between three schools) was turned into a temporary pedestrianisation zone to create more enjoyable and interactive walking experiences for school kids after school hours. Besides students and parents, who are the direct beneficiaries from the prototypes, the Lab Team also sought the views of drivers who, contrary to belief that they would be upset, were delighted to see students enjoying street life (See Figure 10). They even suggested that pedestrianisation could become regular in certain after-school hours, while allowing drivers to park their vehicles in the evening.

In a world that has become “permanently beta”, we believe old standards need to be reviewed constantly and extensive prototyping should be done to allow for trial and error and identify alternative solutions. Prototypes could also be refined or abandoned if users’ feedback was negative. This iterative and experimental approach can respond to community needs, enhance residents’ sense of well-being, and in the long run will also save costs, as only the viable prototypes should be considered for massive implementation.

### **Conclusion**

After 5 years of experience, MaD Social Lab is convinced that it is able to proactively resolve conflicts through extensive community

engagement. The lab team enjoys working with diverse citizens and believes that collective intelligence should be embedded in any community engagement.

The Social Lab aims at facilitating mindset change. It allows providers of public services and facilities to build empathy. While the community engagement does not guarantee any particular outcome, the prototypes that emerge do reflect the wishes of the people.

The MaD Social Lab strives to promote a more inclusive and participatory planning and design process. There are similar civil society organizations such as One Bite Social, Neighbourhood Innovation Lab and Clean Air Network who are also advocates.

Human centric design is a world trend which will facilitate a more sustainable and participatory urban life. We hope you find this piece useful and hope you may explore more possibilities and imagination towards community engagement in the planning process. Public service innovation can and does make our city a better place to live. Let's co-create!



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PLANNING  
AND  
DEVELOPMENT.

# B COLUMN

# A Paradigm Shift for the Planning of the New Territories

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## The New Territories in historical perspective

Under the Convention of Peking 1898, the New Territories (NT) was leased to Britain for a period of 99 years. The rationale for acquiring the NT was based on the defence and protection of the Colony. It was then considered that a battery on the northern shore of Lei Yue Mun Pass, being the eastern approach to the Victoria Harbour, was desirable. (Wesley-Smith, 1998, p.16). After the NT was leased, the intention of the government was to establish authority by levying land taxes before sovereignty was to be returned to China when the lease expired in 1997. (Wesley-Smith, 1998, p.130)

While defence was indeed stated in the 1898 Convention of Peking, there might well be other considerations. A possible one was the need to provide adequate water supply to the growing population in Kowloon, as sinking more wells would not be the answer. Shortly after the commencement of the lease, the construction of the Kowloon Reservoir near the Beacon Hill and Needle Hill began in 1901. Completed in 1910, it

was the first reservoir to be built in the NT.

The New Territories (Extension of Laws) Ordinance was enacted in 1900, under which the laws and regulations in force for the Colony (Hong Kong Island, Kowloon Peninsula and Stonecutters Island) were extended to the so-called New Kowloon. It is part of the NT that is sandwiched by the foothills of Kowloon Hills to the north and Boundary Street to the south and spanning from Lei Yun Mun to the east and Lai Chi Kok to the west. It was a rural area with poor connection to Kowloon. Land resumption was carried out near Sham Shui Po in 1903, followed by land formation works and road works. (Ho, 2018, p. 91)

Further reclamation at Sham Shui Po and Lai Chi Kok were undertaken between 1912 and 1926. (Bristow, 1984, p. 38) Old villages like Fuk Tsun Heung, Ap Liu, Tong Mi and Tai Kok Tsui were resumed and redeveloped. A large planning scheme covering an area of 230 acres to provide a residential suburb for wealthy Chinese was the reclamation scheme at Kowloon Bay by the Kai

Tack Land Company. However, the property slump in mid-1920s had resulted in the government stepping in to complete the reclamation and a large part of which was devoted to the Kai Tak airfield. The Kowloon Tong garden estate comprising 250 houses on 80 acres of land was another major development within New Kowloon which was commenced in 1922 and completed in 1930. (Bristow, 1984, p.40)

The importance of the NT to the rest of Hong Kong was duly recognised by the then Hong Kong Government. It was considered that private sector investment had been affected by the limited lease period, thus hindering the development prospect of Hong Kong. During the 1920s and 1930s, several governors raised the possibility of purchasing or extending the lease of the NT with the British Government but the suggestion was not pursued. (Ho, 2018, p. 100 - 104)

In the post-war period, the Kwun Tong and Tsuen Wan industrial townships were planned with further reclamation. A decision to build container terminals was made in 1969 with the first container terminal at Kwai Chung was completed in 1972 followed by eight more terminals in the decades to come. The 10-year housing programme to cater for 1.8 million people started hand in hand with the New Town development programme in 1972. According to the 2016 By-census, new towns, all

of which are all located in the NT, accommodated almost half of the population in Hong Kong.

Historically, the development in Hong Kong was first concentrated on the Hong Kong Island and then diffused to the Kowloon Peninsula and further to the NT. Therefore, the NT has been acted as an overspill ground for developments, which are considered undesirable to be accommodated within the main urban core or that there is simply not enough space in the latter to house them. The outcome is that major commercial developments and government facilities were largely concentrated in the urban areas. Massive urban and infrastructure development did not take place in the NT until the building of new towns in the 1970s.

Time has come to take a critical look at the NT as an entity in itself and not just an area playing second fiddle to the urban core. It is a place that possesses potentials to help fulfil Hong Kong's long-term vision and that of the Greater Bay Area.

### **What does the New Territories have to offer?**

Notwithstanding the massive new town programme, the NT has still preserved some of the most stunning natural landscapes and geological features. Located at the north-western NT, the wetland at Mai Po and Inner Deep Bay comprising mudflats and fishponds is a sanctuary for local

and migratory birds. The area is recognized as a Wetland of International Importance under the Ramsar Convention. At the northeast is the Hong Kong UNESCO global Geopark. With an area of over 150 km<sup>2</sup>, it showcases the important geological themes of igneous and sedimentary rocks in Hong Kong. It forms part of UNESCO's Global Geopark Network. There are also Sites of Special Scientific Interest including egrettries and fung shui woodland dotted over the NT. Together with vast area of country parks comprising the Tai Lam Country Park, Lam Tsuen Country Park, Tai Mo Shan Country Park, Pat Sin Leng Country Park and Sai Kung East Country Park, extensive areas of high ecological values and natural beauty have been kept as Hong Kong's natural assets.

Some of the indigenous villages have been established for hundreds of years. Historic buildings with vernacular architecture including monasteries, temples, shrines, walled villages, ancestral halls, individual village houses are preserved. In fact, much of the intangible heritage of customs and festivals such as the Tin Hau Festival, "da jiu" (打醮) and "lighting ceremony" (點燈) are still retained. Besides, other pre-war structures like private residences, police stations and bunkers are graded buildings. All these form part of the rich cultural and built heritage in the NT.

Although the NT has been increasingly urbanised, there are still about 755 hectares of agricultural land involving some 2,500 farms in Hong Kong by the end of 2020. Some are operating as community farms for people to grow their own crops or buy organic vegetables and fruits - a trend that has become quite popular over the last decade or so.

Yim Tin Tsai Arts Festival is a three-year pilot scheme bringing to participants new experience integrating arts, religion, culture, heritage and green elements. The project is organised by the Tourism Commission. The Fo Tan Open Studio Programme has been arranged annually by the artists who set up studios in the Fo Tan Industrial Area. A vibrant art sector is gradually taking shape.

The above natural features and man-made heritage are attractive to locals and tourists alike. Not only are they valuable resources for the tourism industry, they are also assets that nurture a sense of belonging among locals and enhance their quality of life. This will help attract the creative class including those engaging in science, engineering, education, computer programming, research and development, healthcare, business and finance as well as the legal profession is to live and work in the NT.

Major high technology research institutes and

manufacturing facilities are accommodated in the NT. There are two major research universities, namely the Chinese University of Hong Kong and the Hong Kong University of Science and Technology, in addition to the Lingnan University and the Hong Kong Education University. They provide excellent R&D facilities as well as nurturing talents to meet the needs of the technology and other sectors. The Hong Kong Science and Technology Park at Pak Shek Kok, the Tai Po Industrial Estate, Yuen Long Industrial Estate and the Tseung Kwan O Industrial Estate are major venues for R&D, manufacturing as well as incubators for start-ups. The Hong Kong-Shenzhen Innovation and Technology Park located



at the Lok Ma Chau Loop is another campus-like development for innovation and high-technology. The project is undertaken by the Hong Kong Science and Technology Park Corporation with the first batch of building completion expected in 2024. The addition of this facility will further strengthen the capacity for R&D and speed up Hong Kong's development as a high technology centre.

Shenzhen, an advanced innovation and technology hub, is situated right next door to the NT. There is potential for greater collaboration among institutions and firms involved in R&D and advanced manufacturing in both places.



The completion of the Hong Kong-Shenzhen Innovation and Technology Park will provide further impetus for closer co-operation between the two cities. With plans to relocate the Lok Ma Chau Boundary Control Point to Huanggang on the Shenzhen side for joint customs, immigration and quarantine facilities, more space will be made available on the Hong Kong side for technology and other related uses.

If one is asked to describe the NT in one word, “diversity” is probably one of the most fitting description. Present in the area are new towns and indigenous villages, low-rise houses and high-rise apartment buildings, brownfield sites and areas of high ecological value, farming and advanced manufacturing, rural workshops and science and technology parks. It is this rich background that gives the NT the potential for developing into an interesting place to live, work and play.

### **What are the challenges?**

At present, there are over 1,000 hectares of brownfield sites comprising open storage, container yards, car and lorry parking lots and rural workshops. They have not only become eyesores in the NT but also cause pollution, flooding and traffic congestion. However, these brownfield sites have created local employment opportunities. Some also provide much needed

space for storing construction materials for major infrastructure projects or manufacturing activities that are very difficult, if not impossible to be accommodated within multi-storey buildings. Re-provisioning of these facilities is needed to enhance environmental quality and to provide more land for development that satisfies Hong Kong’s long-term needs. For those that are considered essential and should not be displaced, their impacts on the local environment should be minimised and mitigated.

While the town centres of the existing new towns have provided shopping facilities, there is a need for a more upmarket, modern business cum shopping/entertainment area comparable to the prime commercial centres in the urban core. Offices for financial institutions and professional services are part of the ecosystem supporting start-ups in innovation and technology. The planned commercial centres at Hung Shui Kiu and the Kwu Tung may not be able to fill such a gap, if the usual land sale conditions and tenders awarded on price alone are adopted.

The NT also houses all the new towns and planned new development areas (NDAs). Infrastructures are being improved to meet the need of the growing population and the

increased socio-economic activities. An east-west rail link is needed to provide better linkage for the vast coverage of the NT.

Of all the challenges, availability of affordable housing is likely to be the most pressing. With the current housing policy pitched at 70% public and 30% private, many creative workers will find it difficult to find suitable accommodation as they may not be eligible for public housing. In any case, there is a long waiting list for the public housing. Private housing in the NT, though cheaper than that of urban areas, is still considered unaffordable by many. If Hong Kong is to attract international talents, affordable housing at very flexible terms will have to be made available, especially for those involved in start-ups. Failing this will undermine Hong Kong's competitiveness in attracting the best and the brightest from other parts of the world. The Chief Executive in her 2020 Policy Address duly recognised the need to resolve these two major bottlenecks of land and talents.

### **The New Territories can play a more proactive role in fulfilling development goals**

The National 14th Five-Year Plan indicates that the Central Government supports Hong Kong to be developed into an international innovation and technology hub. According to the Outline Development Plan for the Guangdong-Hong

Kong-Macao Greater Bay Area, developing an international innovation and technology hub is high on the agenda. This is to be achieved by building an open community for coordinated innovation in the region, developing quality innovation and technology carriers and platforms and enhancing the environment for innovation in the region. Recommendations include, among others, the development of the "Guangzhou-Shenzhen-Hong Kong-Macao Innovation and Technology Corridor", facilitating cross-boundary and regional flow of innovation elements (talents, capital information and technology) and platforms for international innovation. The Chief Executive in her 2020 Policy Address reiterated the government's commitment to develop Hong Kong into an international innovation and technology hub.

### **Some preliminary thoughts**

The NT has long been serving as a spill-over ground for uses unwanted in the urban core. This is considered no longer appropriate. The NT is a place full of potentials to help Hong Kong achieve the objective of developing into an international innovation and technology hub in line with the vision articulated in the National Fourteen Five-Year Plan, the Greater Bay Area Plan and the CE's Policy Address.

The NT is endowed with major institutions

for education, research and development, manufacturing and start-ups. Its diversified nature has offered a mix of natural and cultural assets making it a fascinating place to live and work. The rich cultural heritage and the presence of arts and high technology clusters also augur well for the development of a cultural technology district in the NT.

There are, however, obstacles that need to be overcome, not least of which is the high cost of housing. Providing affordable housing for the creative workers, consideration can be given to provide more hostel type of accommodation to cater for young workers. They can be built and operated by NGO providing reasonably rental units with flexible tenure. Up to now, R&D facilities are provided by agencies funded by the government. Attempts should be made to invite major technology firms to set up campuses in the NT. Land zoned for high-technology and R&D in the Kwu Tung North area, for example, can be sold directly to major technology companies with the provision of ancillary housing for their workers.

A modern upmarket commercial centre in the NT is required to provide high-end shopping and entertainment facilities as well as quality office space. The Kwu Tung North centre is considered too small for such purposes. In any

case, if the centre is to serve the local residents, 70% of whom are public housing tenants, the type of commercial centre will not be fitting for one serving for the wider area of the NT. The Hung Shui Kiu commercial core certainly has potentials but more need to be done for it to develop into a modern commercial centre.

If the Hung Shui Kiu is indeed chosen for a prime, upmarket commercial centre in the NT, the design of its core commercial zone should be of utmost importance. Land sale should therefore be based on the design of the buildings in addition to the price offered. Moreover, the completed buildings should only be sold en bloc, as the sale of strata titles will not be conducive in keeping the value of the buildings (witness the Worldwide Centre and compare the Admiralty Centre with Pacific Place). Placemaking requires an integrated approach to the planning, design and management of public spaces and buildings, which is essential to ensure sustainability over the long-term.

In terms of improving traffic circulation within the NT, a rail with an east-west orientation is considered necessary. Whether it should be a railway linking North District with Fanling or Tai Po with Kam Tin or any other options will have to be carefully assessed having regard to the



implementation of various NDAs.

Apart from a paradigm shift needed for the planning of the NT, a new approach of spatial planning integrating land use planning with public policies on education, funding for R&D, taxation system, visa requirements for talents, investment promotion, nature conservation, cultural heritage preservation, tourism etc. is crucial to ensure an integrated action programme can be drawn up and implemented. This, however, merits a separate discussion.



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# Planning for a Sustainable Future

Betty Ho

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Future is unknown, full of uncertainties and challenges arising from the changes in the physical, social, economic and, political environments, both locally and globally.

How can we make sure our planning today to deliver a sustainable future for our coming generations? I once heard a high-ranked government official saying that “There is no limits to growth, because intelligence and technological advancements has no limits.” Is this true?

We can all witness the extreme climate that has devastated different places all over the world: heavy rain and flooding, food crisis, energy crisis and water shortage. According to the Hong Kong Observatory, Hong Kong has just experienced the hottest September ever with an average temperature of 32.8C. Annual rainfall has an average rise of 2.3 mm per year from 1884 to 2020, which means, as compared with 136 years ago, we are now having 31cm more of rainfall a

year. And It is predicted that both temperature and rainfall will still be on the rising trend! Can scientific and technological advancement combat all these challenges?

The Hong Kong SAR Government has been working hard on carbon-neutral development to tackle climate change. As advocated in the 2020 Policy Address, Hong Kong is striving for carbon neutral in 2050. To this end, the Government will set out more proactive strategies and measures to reduce carbon emission, implement various energy saving and renewable energy measures, promote electric vehicles and vessels, and introduce waste-to-energy and waste-to resources facilities. Besides, the Government will examine various means to reduce carbon emissions, which include exploring different types of zero-carbon energy and decarbonization technology, enhancing the energy efficiency of both new and existing buildings, etc.

The CIC–Zero Carbon Park, completed in 2012, is highly rated as the first zero carbon building in Hong Kong. It has since been acting as a test bed for state-of-the-art eco-building and low-carbon design and technologies and a tool for raising public awareness on the importance of green-building design, and inducing a paradigm shift towards sustainable living.

Indeed, it adopts many advanced measures in energy, drainage, water reuse, etc. to improve the environmental performance. It generates renewable energy from photovoltaic panels on-site and adopts a tri-generation system using biofuel made of waste cooking oil. Besides, energy efficient active electrical and mechanical systems, for heating, ventilation and air conditioning systems and lighting systems are used, and stormwater is also used as a condensing medium for the air-conditioning system. There are Eco-toilets equipped with low-flow sanitaryware and greywater recycling systems, together with blackwater recycling treatment and waterless urinal. An artificial wetland is built to help treating greywater / stormwater by the roots of the plants. 47% of the site is covered by greenery which helps lower the ambient air temperature by up to 1°C. The planted urban native woodland area includes 135 native trees of over 40 different species, providing food and shelter to attract native wildlife to the city.

Over the years, the Zero Carbon Park has gained popularity and recognition from the construction industry and is hoped that more and more developments will opt to adopt the green features, particularly with incentives such BEAM accreditation and Green Building Award. On the other hand, while some technologies are capable to improve carbon emission, achieving carbon neutral in the majority of private development is still a dream to come true in the real world as they are immensely constrained by financial consideration. But international experience and advocacy can throw lights on this.

Many countries are now turning to “Nature-based Solutions”, or “Natural Climate Solutions” (NCS). They bring together established ecosystem-based approaches, such as ecosystem-based adaptation and ecological engineering with social and economic dimensions, and include conservation, restoration, and /or improved land management actions for forest, wetland, grasslands and agricultural lands biomes that increase carbon storage and/or avoid greenhouse gas emissions. Land can be a powerful carbon sink that can return atmospheric carbon to living vegetation and soils. Plants and healthy ecosystems have tremendous capacity to absorb carbon through photosynthesis and store it in living biomass. By combining enhanced “land sinks” cluster around ecosystem protection and restoration, prudent use

of degraded land with reduced emissions, climate solutions can be very effective.

In Hong Kong, pursuing carbon neutral through technological advancements on every site seems unrealistic. Instead, it is more practical to have a comprehensive and holistic planning to protect our environment and achieve carbon neutral. Unfortunately, it is doubtful on whether the Government is adopting the right track.

For many years, there has been pressing demand for housing which has also become a major political issue. Many argue that Hong Kong should develop part of the country park to supply land for housing. While Hong Kong is protecting over 40% of her land as country parks and conservation areas, most of these lands are water gathering areas, with topography not favourable for development, and/ or high ecological value. These are also areas for carbon sinks which contribute to positive climate and can reduce heat island effect in the urban area. They should hence be developed only when there is absolutely no alternative.

In fact, many researchers have pointed out that Hong Kong does not lack of developable land. Apart from the New Development Areas, we still have over 1,000ha of brownfield lands in the New Territories which are already formed and accessible by transport. Years ago, many of

the open storage yards were used for storage of containers, as back-up facilities of Hong Kong's Container Port or storage of building materials (e.g. marble slabs) and construction machineries. These uses are not suitable to be accommodated in industrial buildings. With the improvement of transport infrastructure, most of these uses have been moved to Pearl River Delta Region. Nowadays, the majority of open storage yards are used for storages of recycling materials which make use of the cheap land rent for their business. These open storage yards have little economic benefits to the Hong Kong community at large, and are not cost-effective in terms of social (little employment opportunities), and environmental considerations. Others are mainly logistic operations which may have more economic benefits, but the sporadic development in the New Territories will cause substantial environmental degradation and will also adversely affect comprehensive planning and land use. They should, instead, be located in well planned areas guided or regulated by the Government.

Since most of the brownfield lands are of minimal or no ecological value and was already formed with access roads, it will take relatively much shorter time to develop them for housing purpose and the amount of units that can be provide will also be substantial. Some people may argue that it would be problematic to develop the brownfield sites as

housing and GIC facilities on these lands, she can use Land Resumption Ordinance to resume all lands, regardless of the ownership. This will be more efficient and can comprehensively provide public housing with supporting facilities quickly, without destroying the environment and precious ecology in our country parks.

Planning for a sustainable future does not mean how we can develop and exploit our resources continuously. The goal of genuine sustainable development is to meet the needs of the community in a sustainable way. As said by Andre Gide, “we don’t inherit the earth from our ancestors, we borrow it from our children.”



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**C** STUDENT CORNER

## BIM-GIS Integration:

# Comprehensive Development Area at Diamond Hill

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### Introduction

Owing to the technological advancement in handling a great amount of data, the Architecture, Engineering and Construction (AEC) industry is slowly adopting the integration of Building Information Modelling (BIM) and City Information Modelling (CIM) technologies in proposing developments. We will demonstrate the adoption of the technology in a proposed development at the Comprehensive Development Area (CDA) at Diamond Hill, Hong Kong. It is expected that the building design and geospatial analysis of its relationship with the surrounding environment could be better visualized with the 3D modeling technology. Hence, a more thorough pre-development proposal could be outlined to facilitate the process of planning, construction and post-construction monitoring.

The baseline study of the surrounding environment is being conducted in ArcGIS, providing a

comprehensive understanding of the site. A proposed design of the housing project would be modelled in Revit with façade details and imported in ArcGIS for advanced pre-development analysis and comparison. The combined application of ArcGIS and Revit is known to be BIM-GIS Integration.

### Project Background

The site area located in Diamond Hill for the proposed development is 2.83 hectares. According to the Hong Kong Outline Zoning Plan, the site is classified as a Comprehensive Development Area (CDA). This zoning should be planned as a comprehensive development for residential and commercial uses, meanwhile providing adequate open space and related supporting facilities.

### Geospatial Analysis in GIS

Buffer analysis of the site area has been conducted in GIS, showcasing the existing environment



of the CDA site. To analyse the accessibility, walkability and facility coverage of the site, tools of Buffer and Multiple Ring Buffer in ArcGIS Pro are used with multiple ring buffers of 200m, 500m and 700m to assess the variation in facilities

coverage. Accessibility to surrounding supporting facilities like transportation, communal, sports, healthcare, leisure and educational facilities is included in the analysis.

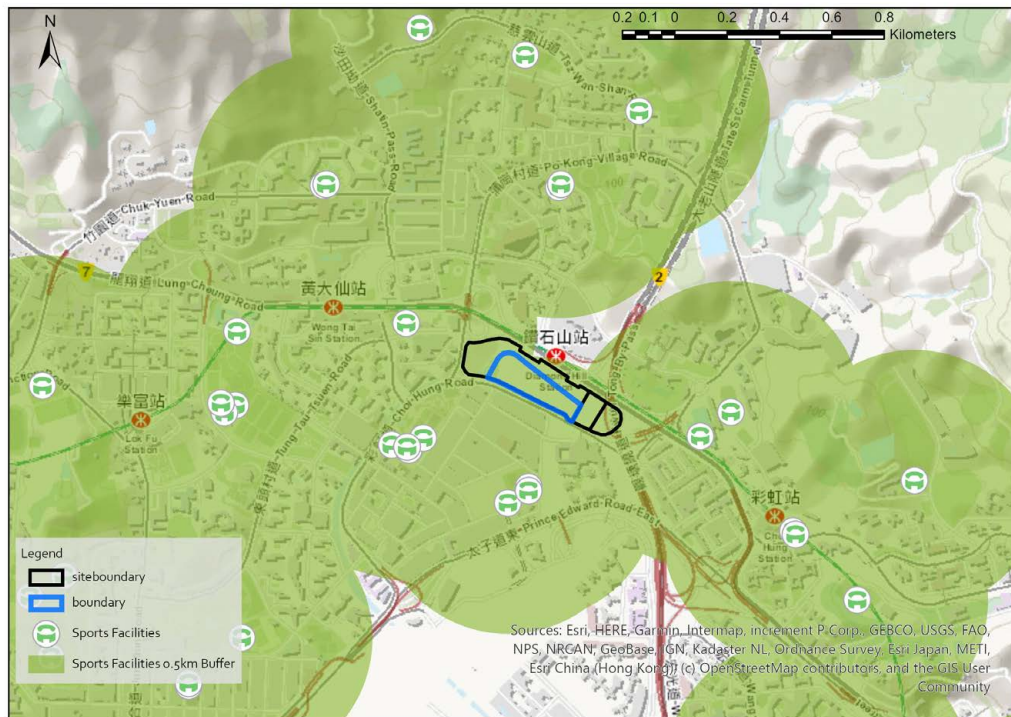


Figure 1. Buffer Analysis

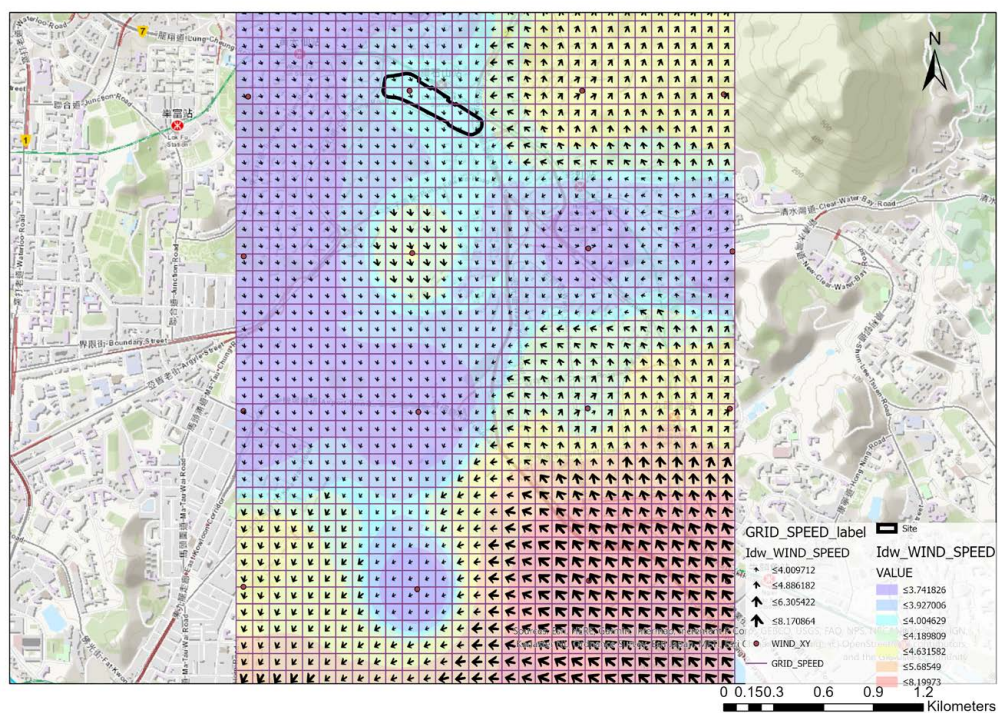


Figure 2. Wind Analysis

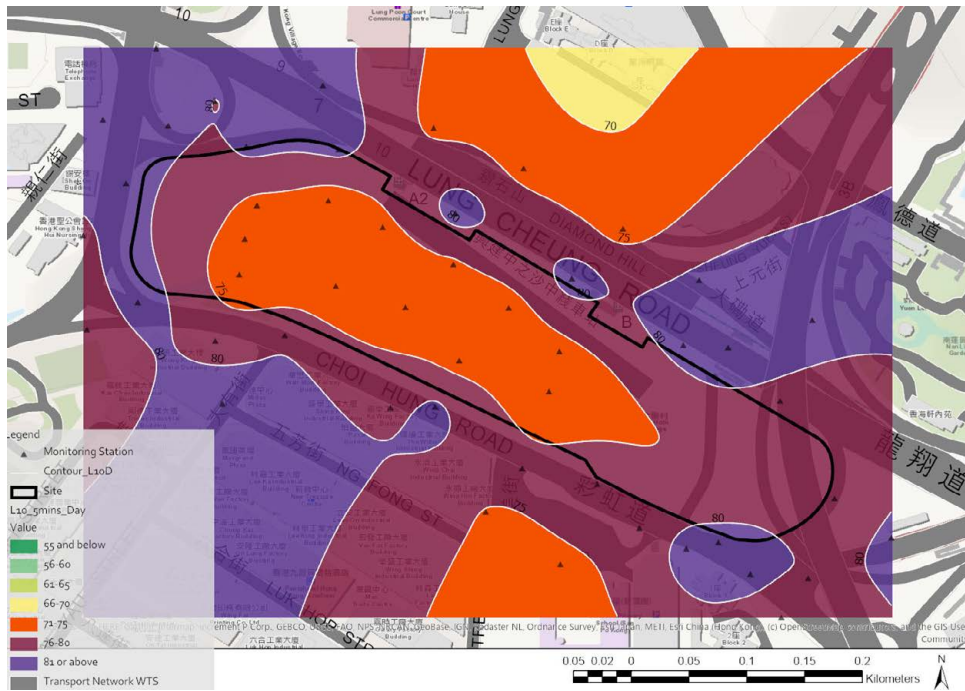


Figure 3. Noise Mapping

As for the Wind analysis, the Inverse Distance Weighted (IDW) method is used. The IDW method estimates that the variables demonstrate a decreasing trend as distance to sampling points increases, which likely mimics the depreciating wind speed as it travels inland (Esri, 2001). After producing a raster layer of wind speed, the Create fishnet tool is applied to generate arrows indicating wind direction in each small grid (Martín, 2015).

Noise mapping was prepared with the application of the Interpolate and Contour Analysis in ArcGIS Pro 2.3 software to visualize the noise level distribution at the site. The data collected is input into a csv. format file with coordinates plotted and generated by Google Earth. After converting the table into point features in ArcGIS Pro 2.3, an interpolation tool *Topo to Raster* is applied to mold the potential changes between points of noise level

data to form an elevation surface (Esri, 2020). For a clearer interpretation of the results, contour analysis is applied to contour different noise level categories with isoline marked in the intervals of acoustic level. If there is a professional noise modelling, a 3D noise mapping that considers the noise impact variation at different floors can even be produced.

The application of GIS in pre-development feasibility studies helps visualize the site environment and performs analysis in a more timely manner. The above analyses pinpoint the characteristics of the site and provide more sophisticated information for future planning, facilitating the whole development process.

### Model building in BIM

After examining the site's planning constraints

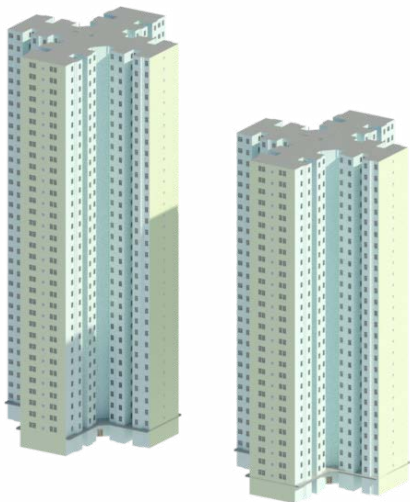


Figure 4. 3D Model

and limitations, a three-dimensional model was created by Revit, a Computer-Aided Design software, generating the site and massing plan of the proposed project in both top view and 3D view. With real-time rendering, the context and facade of the proposed project is visualized. A master layout plan is generated with reference to the conceptual layout plan provided by the Housing

Floor Plan/2F

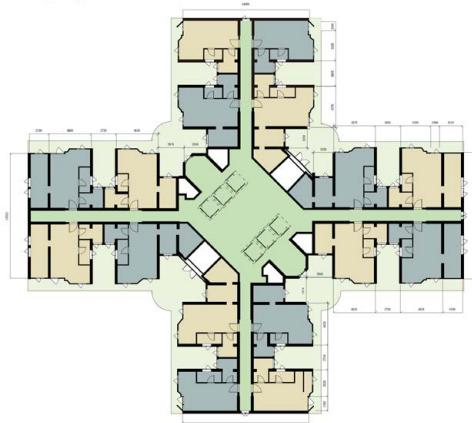


Figure 5. Floor Plan

Authority.

BIM provides an opportunity for town planners, architects and engineers to collaborate, and therefore enhance workflow efficiency. The conventional architecture design process has been limited to 2D documentation, dragging the whole working progress. When the collaboration between professionals is shifted to the aid of 3D

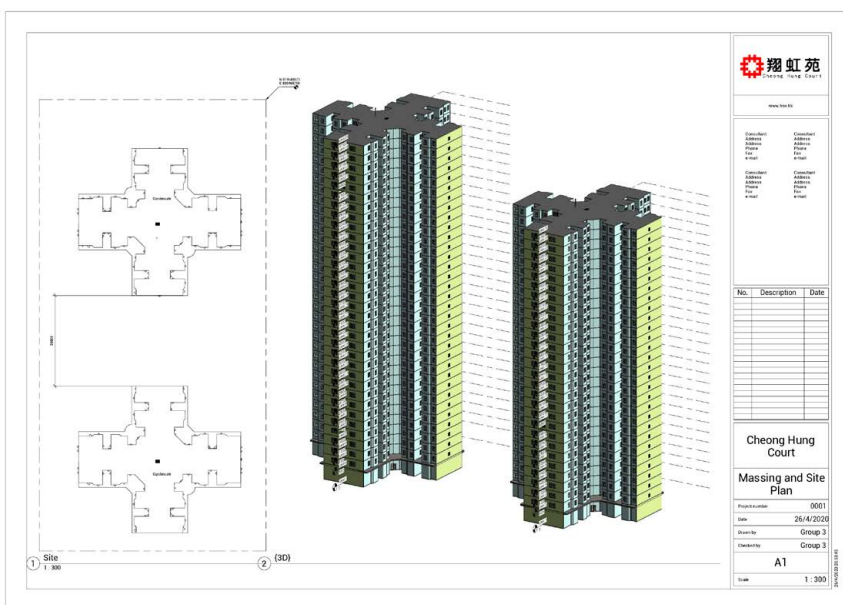


Figure 6. Massing Plan

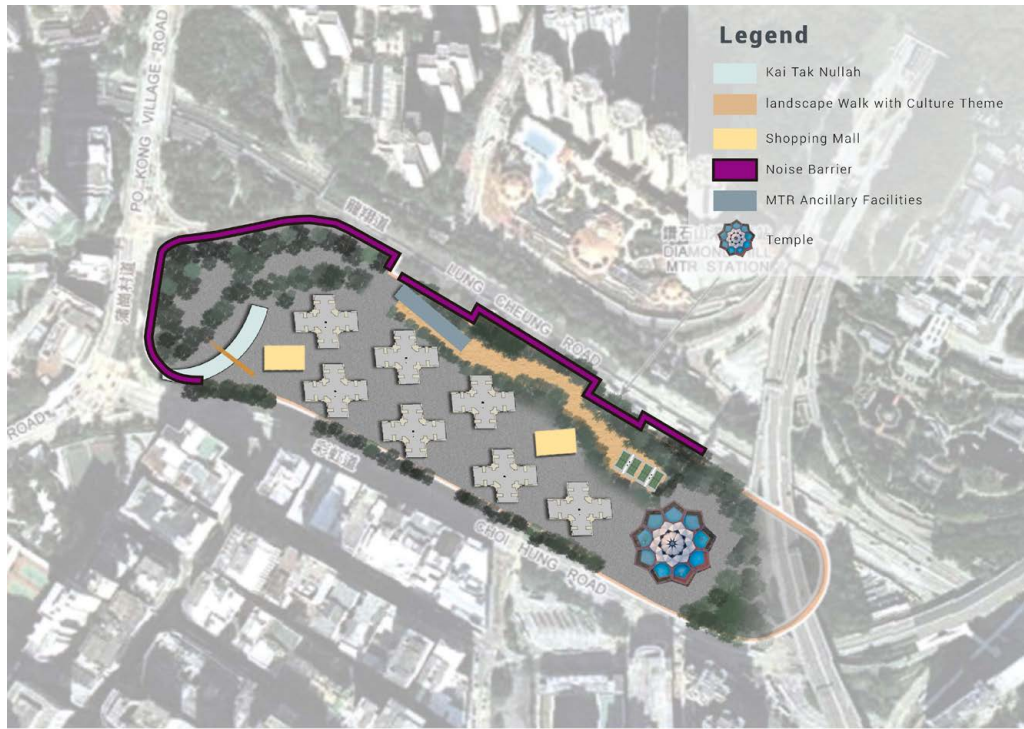


Figure 7. Master Layout Plan

modelling, a more in-depth and a wider scope of coordination across disciplines can be foreseen (TMD STUDIO LTD, 2017). The well-documented information accelerates the working progress and shortens the required time to take further actions.

Not limited to one development phase, the entire lifestyle of the project development can be benefited by the technology.

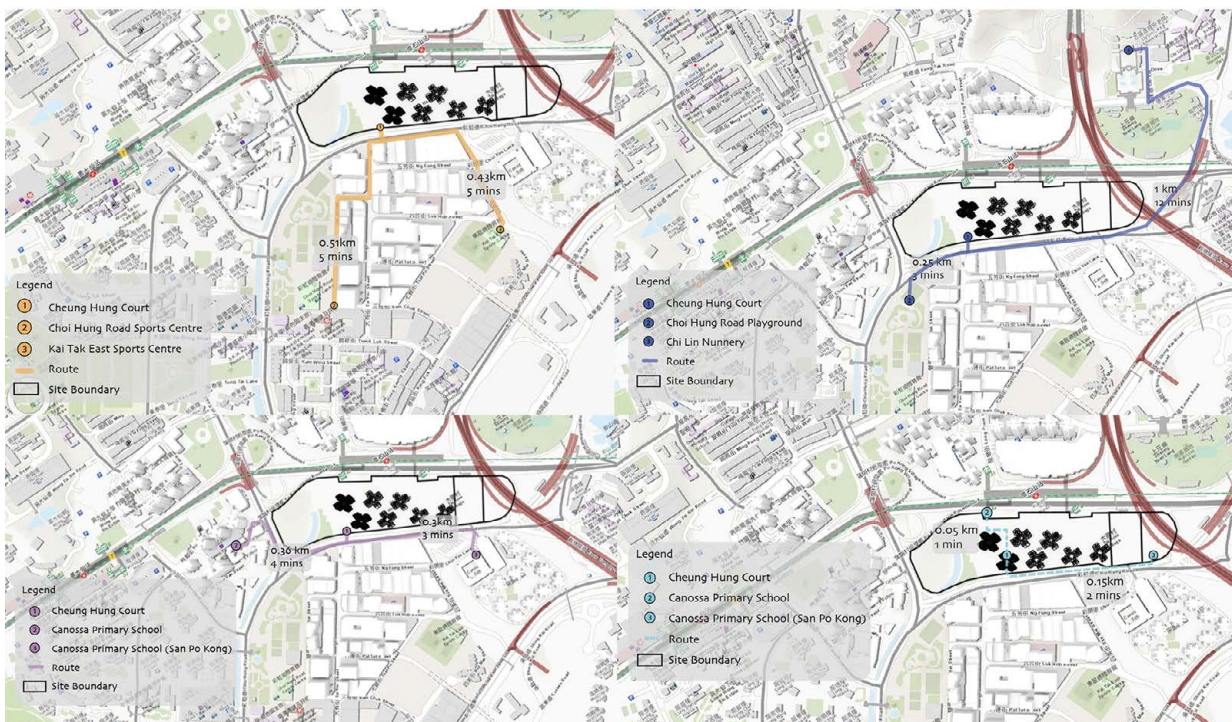


Figure 8: Route Analysis

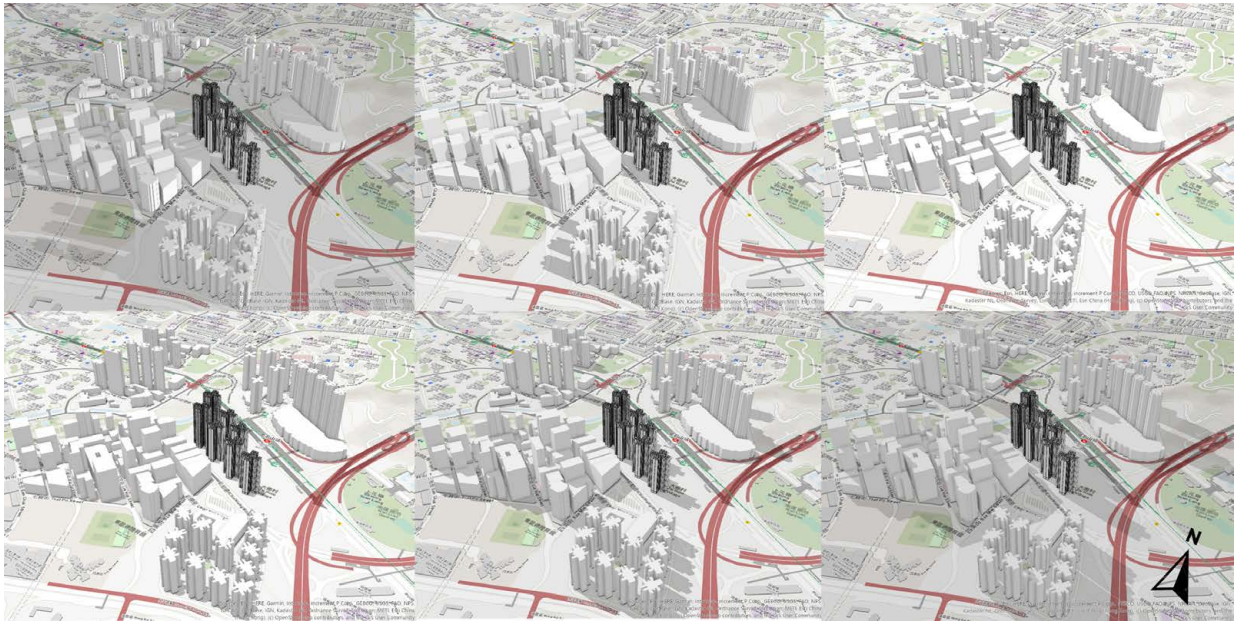


Figure 9. Shadow Impact Analysis

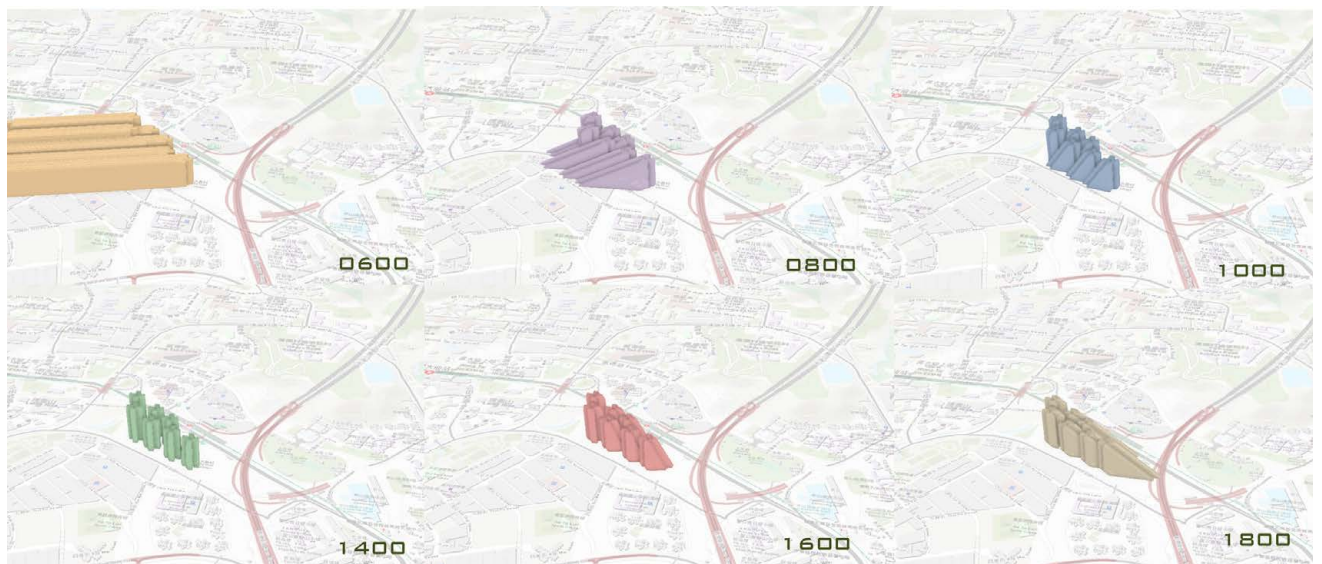


Figure 10. Sun shadow

### CIM Analysis

The Integration of BIM and GIS executes as the City Information Modelling System (CIM), a rich semantic modelling process beyond visualizing the building. CIM enables a more thorough analysis on the surrounding environment and its correlation with the proposed development.

Route analysis is conducted to evaluate the proposed development's accessibility to nearby

facilities. The Network Analysis tool in ArcGIS Pro analyses the walking distance and walking time to reach the nearby facilities. With the 3D model attached to the 2D map, the routes to the facilities can be visualized and predicted more accurately.

The 3D simulation ability of ArcGIS Pro also allows us to conduct a shadow impact analysis on how the proposed development might affect the surrounding environment in receiving sunlight.

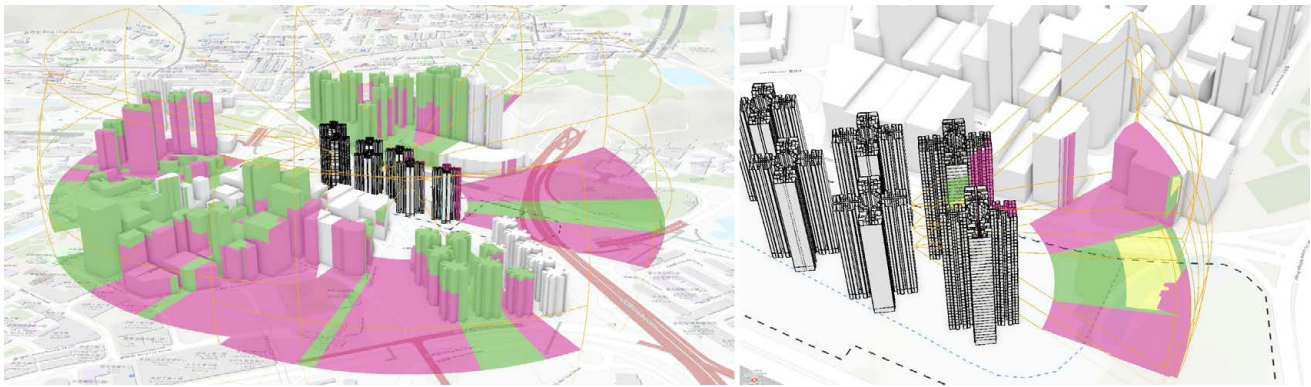


Figure 11. Viewshed Analysis

Two tools have been applied here, which are 1. Shadow Impact Analysis Tasks project package, 2. Sun Shadow Volume (3D Analyst Tool). The project package of shadow impact analysis is an ArcGIS solution that can be deployed in the ArcGIS organization. Both methodologies provide a general picture of how the shadow changes at a given time of the day.

With the sun shadow volume tool, the shadow profile could be easier to understand with the different colours for different times of the day (Jensen, 2017). By observing the multipatch 3D shadow, shadow projection noticeably extends for a long distance at sunrise and sunset, while shadow at midday has the shortest distance from buildings. The hourly change simulation of shadow movement and coverage allows us to spot well-shaded or exposed spaces for different uses, e.g., sitting-out areas, athletic fields.

To conduct the viewshed analysis, viewshed and line of sight tools in ArcGIS Pro are used. This analysis is to perform the demonstration

of the views from buildings to the surrounding environment. With the application of CIM, the viewshed analysis could be conducted more in-depth, compared to the conventional method of photomontage. The viewshed analysis in ArcGIS could be performed in different heights, perspectives, and extent, which is a more dynamic approach.

### Benefits of BIM-GIS Integration

With the help of smart technologies, the construction of a sustainable and resilient environment is enabled. Planners and operators utilized GIS to perform complex analysis and simulation on the surrounding built environment to mitigate the negative impacts of the high-density built environment nearby. Meanwhile, BIM is capable of doing building assessments to reduce the environmental impact of the buildings (Fountain & Langar, 2018). In order to boost efficiency and quality, the designers, surveyors and engineers employ BIM at various stages of the construction, such as detailed design, documentation and construction in 4D

and 5D. All detailed information such as light and shadow, the context of the exterior shell and attribute information of the material price list can be displayed instantaneously. Errors can be minimised by checking the displayed model as BIM detects clashes in engineering elements such as electrical conduits running into a beam (Ball, 2018). The model can also simulate the surrounding environment of the building at its actual location so that professionals can visualize the impact of the surrounding factor on the building or vice versa. These predictions and simulations increase the efficiency of the work schedule as it reduces the time of checking error and correction in conventional construction work schedules.

Combining the merits of both technologies, the CIM application centralizes building and geographic information, which consolidates the ground for making strategic decisions (Zeiss, 2018). Project development can now scientifically consider the surrounding environment, thus

having better insights on the site and potential impacts on noise, walkability, accessibility to facilities and transport nodes, etc. Orientation, mitigation measures or site entrances could be pre-determined, and hence have better integration with the neighbourhood (Song, *et al.*, 2017). Integrating the technologies reduces the construction cost due to the close monitoring of each construction stage and accurately controls the maintenance cost due to statistical spatio-temporal analysis. For instance, with BIM-GIS integration, the project cash flow can be recorded by BIM, while spatio-temporal analysis of cost clustering and cost scenarios can be predicted by GIS (Lu, Won and Cheng, 2015). It could even be applied at the macro level to carry out ecological and energy assessments to improve city adaptability to climatic change (Song, *et al.*, 2017). Therefore, a holistic and far-sighted development that incorporates environmental considerations can be foreseen (Urban Renewal Authority, 2019).



Figure 12. CIM

## Reflections

The vision of “Smart City” has become an important agenda of Hong Kong’s public and private sectors in this decade. Being the essential player in shaping the built environment of Hong Kong, the AEC industries undoubtedly face

the urgency of digital transformation for smart city development. The application of BIM-GIS integration in feasibility studies is the key trend in the digital era. The merits of BIM-GIS integration in pre-development analysis are recognised by the 3D visualisation of abstract proposals and plans and the ability to conduct geospatial analysis and simulation on various dimensions.

While attempts and efforts of the Hong Kong SAR government to take the leading role in smart city development have been regarded, there is still room for improvement. The hesitation for construction and many other industries to apply smart technologies might be due to the uncertainty of data interoperability in different software. The complexity of tasks that BIM demonstrated might not be visualized in other software, and this appears to be the major concern of advanced users (Fernandes, 2013). Some other data formats are proprietary to their inventor, e.g., 3DS for 3D-Studio, SAT for Spatial Technology, etc. (Fernandes, 2013). In the transition of data from one to another, loss of information might occur, and extra efforts on applying open standards, e.g., IFC (Industry Foundation Class), UBM (Unified Building Model) are needed to exchange the data (Fernandes, 2013; Song, *et al.*, 2017). This might slow down the collaboration efficiency. Despite difficulties in supplying IT talents and changing conservative culture among the industries, data

disclosure, exchange, and protection also lack experience and knowledge.

For this reason, it is recommended that Hong Kong should learn from other thriving smart cities, such as Singapore, to establish a concrete governance and development framework. Currently, only design guidelines are established for the Hong Kong AEC industry to facilitate the application of BIM in the construction of projects. The Singapore Building and Construction Authority (2015) published the Virtual Design and Construction (VDC) Guide, BIM Guide, and BIM Particular Conditions for a thorough and detailed explanation framework for roles and responsibilities of different stakeholders in implementing BIM technology. These guidance notes also facilitate the further implementation of BIM technology in different development stages of projects. In the meantime, economic incentives could be strengthened to encourage shifts in social practices and ultimately enhance public exposure to smart technologies. In addition, direct financial support can be offered to the public authorities and AEC companies for workflow digitalization. With Hong Kong's rapid improvements in technology, it is believed that the limitations would be eliminated in the near future. As the benefits of adopting BIM-GIS integration outweigh its limitations, future planning studies should promote full-scale promulgation of the technology.

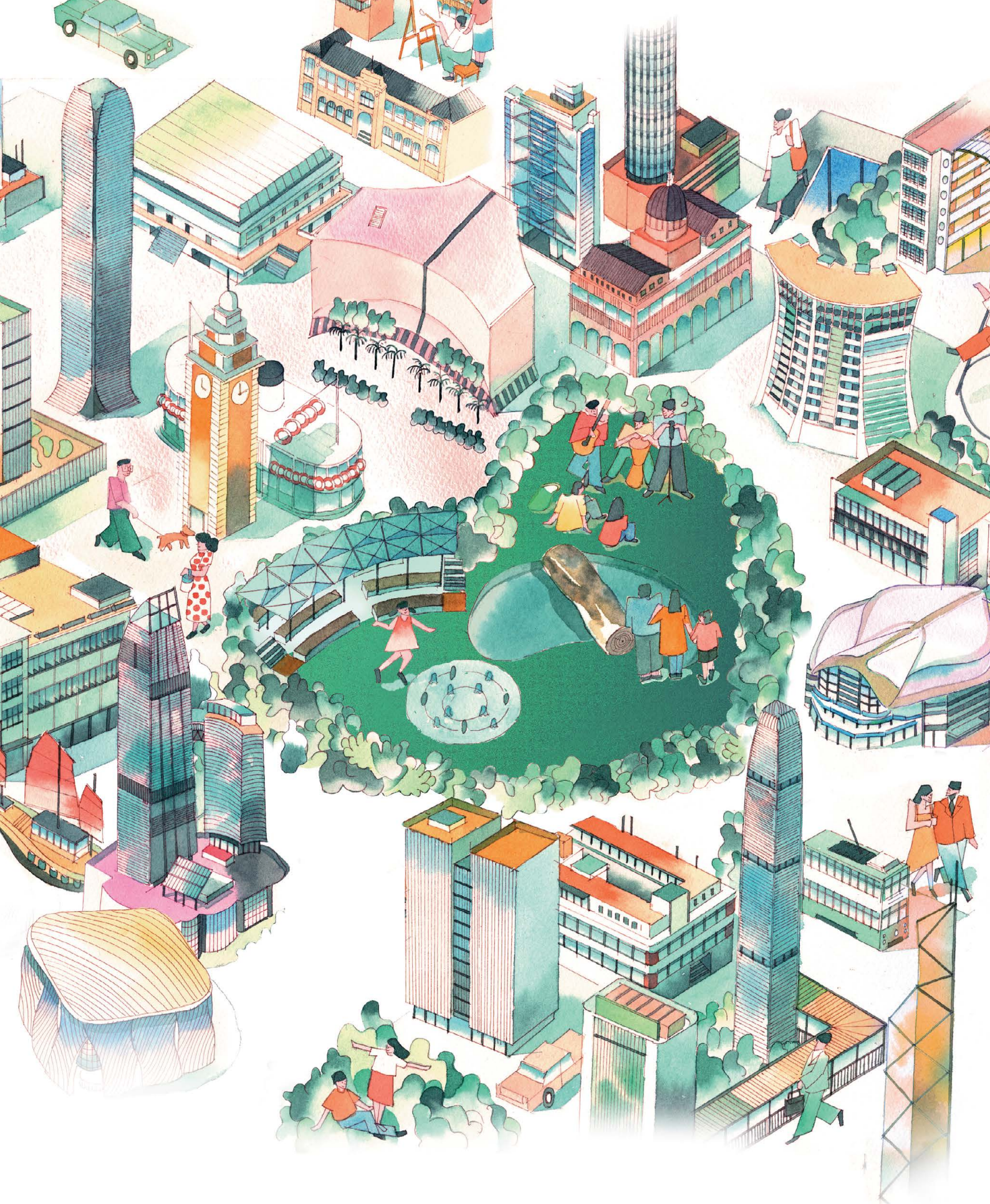


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# D VIEWPOINT

# Some New Urban Places and Nodes in Hong Kong

Ho Chi Wing (aicp rsia hkis hkiud ra/rpp China)

*Mr. Ho Chi Wing is an architect-planner and real estate analyst, principal of CWHHA and former A/P of the Master of Urban Design program, HKU and SL in estate management NUS and has received several grants on development research in Hong Kong including the advocacy urban design visions on strategic planning, shortage of land, East Lantau marine community, new urban spaces in Hong Kong. It is hopeful that this article will serve as reference to the government, related professionals, academics and students of urban design.*

## Context

In the recent development history of Hong Kong, the practice of comprehensive urban design concepts and place making hardly exists, partly due to its prevailing 'laissez-faire' economic policy and planning system. The Town Planning Ordinance, the preparation of Outline Zoning Plan (OZP), and the planning application process are legalistic, and practical controls leaving little room for advancement on the merits of urban design. However, the recent shortage of land, the 2030+ strategic plan and the general awareness of the community, lead to a growing emphasis on urban design. There is the introduction of mechanisms such as the OZP building controls, view corridors, wind tunnels and urban design competitions. To further promote education and urban design standards, HKU started the Master of Urban Design program in 1988 and the Institute of Urban Design was formed in 2010. Nevertheless, there is a recent surge in the creation of new urban

places and nodes in Hong Kong. This includes major central waterfront park and promenade, cultural and university malls, pocket urban parks, roof gardens among others. This article is to address their implications on urban design in Hong Kong as a world class city.

## Recent Urban Spaces and Nodes in Hong Kong

There are numerous vibrant urban open spaces and nodes in other world class cities. The Saint Marco Basilica and Piazza San Marco in Venice, the Plaza del Campo in Siena, the Lorenzo Bernini's Piazza San Pietro in Rome, the medieval market squares in Lausanne and the contemporary Rockefeller Plaza and Ford Foundation Atrium in New York, the Union Square in San Francisco, and the Bund in Shanghai are a few illustrious examples.

There are several features which contribute to the environmental quality of these spaces, namely, its spatial definition, enclosure, history,

activities, connectivity and architectural merits. While Hong Kong cannot compete in many of these aspects, but it is not too late to have some attractive urban open spaces for its citizens. Hong Kong is a city noted for its high density, efficient public transport, indoor activities, shopping and good food but perhaps less for its outdoor activities and exposure. This is partly because of its hot summer heat and typhoons. Thus any vibrant urban open spaces in Hong Kong have to combine environmental quality with appropriate activities in order for it to be successful.

For example, while the partially completed and long awaited Central Wanchai harbourfront has many well designed landscaping and outdoor features, but its vibrancy is not complete if it is not supported by appropriate functional activities. Likewise, the IFC roof top is well supported by its F&B and business functions and the Hong Kong University Centennial Mall is serving as a busy connection between the academic facilities on both sides. The following are some urban design criteria and its application to view the vibrancy of these new urban open spaces.

### **Some Urban Design Criteria on Urban Open Spaces**

There could be a number of criteria to evaluate the success of an urban open space. The criteria that could be applied include function,

spatial quality, focus, scale, aesthetic, linkages and amenities, among others (RMJM CWAH Design Intl. (2002), Urban Design Guidelines , Planning Department, Hong Kong SAR)

#### ***i) Functions and activities***

In order for an open space to be vibrant, it must have a clear purpose and function, be it a historical square, commercial hub, community gathering space, relaxation and recreation area, among others. Diverse activity patterns, vitality and movements are essential elements of vibrant urban life but these functions are often overlapping.

#### ***ii) Spatial quality***

The spatial definition of an open space is very important. It can be an square enclosed by notable architecture like many in Europe. The sequence of spaces as discussed by Gordon Cullen in 'Townscape' can also provide a sense of 'here and there'.

#### ***iii) Focus***

In an urban open space, especially if it is an open one, is often identified with its focus, like the obelisk in the Washington Mall or the fountains in Place de la Concorde, Paris. Although urban open spaces in Hong Kong cannot compete with these historical monuments, it can be compensated by nice design and furnishings.

*iv) Human scale*

The built elements should bear certain relationship to human scale to facilitate personal interactions. There should be a proper transition

from public to private zones and from macro, fast moving space to intimate personal space. A good example of this is the movement of the five storey brownstone town houses in the east



*Figure 4. Functions and Activities: Piazza San Marco*



*Figure 5. Spatial Quality: Square in Lausanne-'here and there'*



*Figure 6. Focus: Washington Mall*



*Figure 7. Human Scale: Brownstones in New York City*



*Figure 8. City Texture: Verona, Italy*



*Figure 9. Amenities: Fountain in Lyon*

west side streets towards the high rises along the north south avenues of New York. (Fig 7).

#### v) *Aesthetic*

People need visual comforts, interest and excitement and the architecture, color, texture, art, graphics of a city should possess the necessary aesthetic quality to harbor inspiration and appreciation. (Fig 8)

#### vi) *Linkages and circulation*

A large urban open space has its own circulation system to serve as a transition lobby in a busy city and be well connected to the adjacent functions and buildings.

#### vii) *Amenities and landscaping*

The most valuable assets to conserve in a city are its natural features: mountains, harbors, waterfront, flora and vistas. Amenity support, public transport, landscaping, paving, street furnishings, signage, lighting are essential elements in public open spaces.

### Recent New Urban Open Spaces in Hong Kong

#### a) *Central Wanchai Harbourfront*

The first phase of the Central Wanchai harbourfront promenade from the City Hall to the new Government Center has finally become accessible. The magnificent large open space is not only unique for Hong Kong but perhaps among other major Asian cities. It

has gone through many controversial concepts since it was first conceived in the 1990s, from mostly commercial to now mostly recreation for the people through the efforts of many



Figure 10. Harbourfront Open Space



Figure 11. Planning Concept



Figure 12. Path Leading to Central

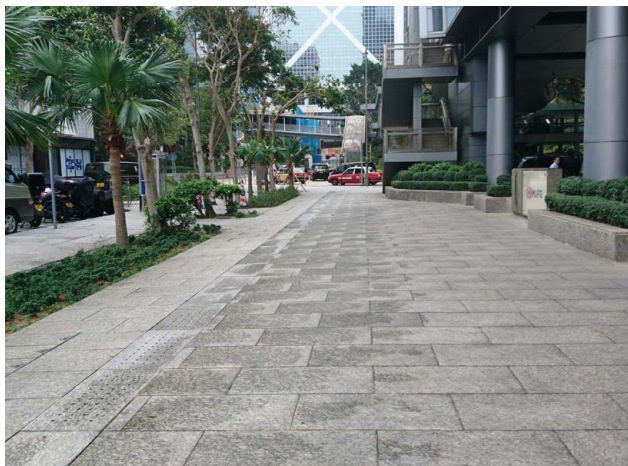


like the ‘Save the Harbour’ movements’. The newly accessible portion is vast (especially in the Hong Kong context) and commands spectacular views of the Victoria Harbour and the Kowloon skyline. It features well designed pocket parks, terraces, observation decks, paths and landscaping. However, it differs from other urban parks like the Central Park of New York or Hyde Park in London and is not surrounded by notable architecture or well integrated with the existing urban fabric and is also underutilized. Nevertheless, it is only partially completed and perhaps it will reach its full potential in the future.

(Fig 10, 11, 12)

### *b) AIA Plaza, Central*

The AIA Plaza in Central recalls the pocket urban parks in midtown Manhattan although it is not entirely enclosed as the squares in Europe. It is part of the AIA Headquarter which happens to have a magnificent lobby on the first floor but renders little connectivity. The spatial quality is intimate for lunches and resting, but lacks focus. However its human scale, texture and excellent landscaping is what distinguishes the space (Fig 13, 14)



*Figure 13. A Well-conceived Urban Oasis Underutilized*



*Figure 14...with a Magnificent Indoor Lobby*



*Figure 16. with Magnificent Furnishings and Views*



*Figure 15. A Well Supported Roof Garden at IFC*

### *c) IFC Podium Garden*

The IFC roof top mall is a functional design in an ultra modern setting. The mall features several restaurants and bars intending to provide the urban workers a relaxing place for after work happy hours. It is also a place for families and friends to relax on weekends. The space is purposely designed, functional and of good architectural finishes with adequate landscaping and magnificent sea views of the harbour and Kowloon. Worth mentioning is also the more active podium plaza in Phase III with its Henry Moore sculpture even though the space is not well defined and act more as a circulation point. (Fig 15, 16)

### *d) Hong Kong University Centennial Campus Mall*

The pedestrian mall of the Hong Kong University Centennial Campus is well integrated with the MTR station, and the academic buildings and amenities on both sides. It also has different functional spaces such as study and resting kiosks and pocket open spaces to provide variety and visual surprises. It is active as a pedestrian corridor and defined by buildings and open views of the Pokfulam district. It is a more successful campus planning among the higher institutions in Hong Kong. It serves as an example of a well-planned 'large scale architecture



*Figure 17. Centennial Mall*



*Figure 18. a Variety of Spaces*

### *e) The Tai Kwun*

The Tai Kwun or the former Victoria Central Police Station is an illustrious historical preservation project in Hong Kong. It dates back to 1841 when the first building, the Magistrate House with jailing blocks was first built. The site underwent numerous expansions and reconstruction over the 20th century, carry with it a rich history and legacy. When Victoria Prison was decommissioned in 2006, the compound accomplished its mission as a law enforcement organization and the government and the Jockey Club decided to restore and revitalize

the compound into a testament to Hong Kong's heritage. (Fig 19, 20)



Figure 19. Lecture Theatre



Figure 20. Resting Spaces

It provides a successful example of conservation because of its non-profit status, size, variety and meticulous restoration to the finest. It includes several open spaces and colonial buildings now converted into exhibition spaces, galleries, eating places, and boutique shops, connected by stairs and an internal circulation system. The variety of open spaces comprises of amphitheatre, squares, pocket parks and transitional spaces. The heritage buildings

were meticulously restored to its original form whenever possible. However, the two new buildings in place, although functionally attractive, are neither 'futuristic nor colonial' in expression.

The Tai Kwun, if properly linked up with the nearby attractions such as the art galleries and antique shops along Hollywood Road, the entertainment node of Lan Kwai Fong, the restaurants in SOHO, the mid-town escalator, the Central Market (now under restoration) and the waterfront promenade, could provide a central cultural district that other Asian cities will find hard to compete. (Fig 21)



Figure 21. Main Court Yard

## Conclusion

Unlike European and some South American cities with their long historical urban fabric, there are no historical urban markets and squares in Hong Kong and thus the preservation of urban open space to begin with. As a colonial city in the past, it even lags behind other cities such

as Singapore and Kuala Lumpur with its civic centers. It is sad to mention the nearby historical architecture like the former General Post Office and the TST Train Terminal which have been ruthlessly destroyed.

The high land value in Hong Kong is another reason for the lack of urban open spaces which results in tiny 'left over' urban parks, traffic islands and the uninhabitable spaces under the flyovers. There are little incentives for developers to provide useful plazas and setbacks, although few projects like the HSBC Headquarters have done so for the additional bonus plot ratio. Nevertheless, with the recent provision of the urban open spaces mentioned above and pending on its future management, Hong Kong can now be proud of its urban amenities. The Central Wanchai harbourfront promenade and the Tai Kwun/Lan Kwai Fong/ Central Market (under renovation) could make Hong Kong a cultural world class city.

Looking ahead, it is gratifying that a century old commercial city like Hong Kong has gradually evolved into a world-class urban design city. Urbanity in Hong Kong has always been identified with its high density interactions, efficient transport system and now even splendid open spaces. The city, however, has to address its shortage of land for housing and amenities.

Beyond the border, China and the Pearl River Delta offer ample opportunities for creative planning concepts and large scale architecture some of which may create significant places.

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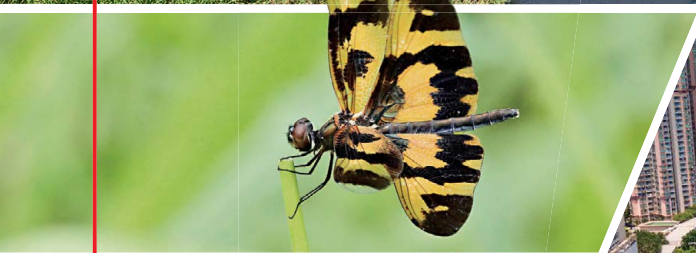
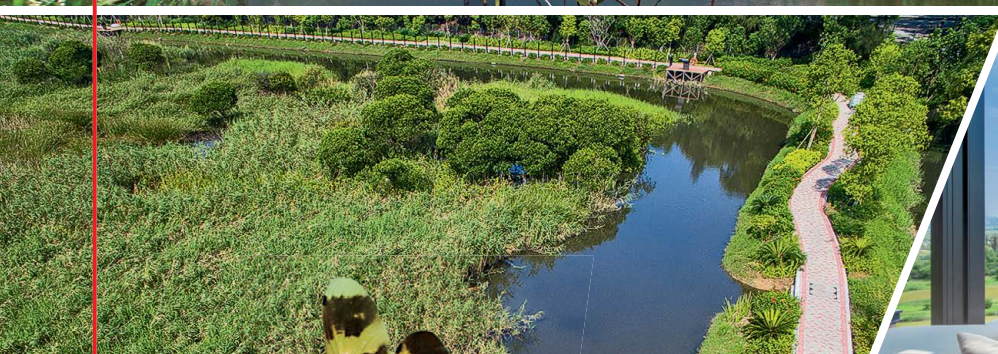
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新鴻基地產一向重視平衡發展，是香港其中一個發展商將濕地保育結合大型項目，元朗PARK YOHO是首個成功融入活化濕地的住宅項目。此外，WETLAND SEASONS PARK位於香港濕地公園毗鄰，同時處於濕地緩衝區內，是另一個成功展示濕地和發展能共存的項目。

With an emphasis on balanced development, Sun Hung Kai Properties was one of the first developers in Hong Kong to integrate wetlands within large-scale projects. PARK YOHO in Yuen Long, successfully integrates rejuvenated wetland with residential development. Another project, WETLAND SEASONS PARK is situated right next to Hong Kong Wetland Park and within the Wetland Buffer Area, it successfully demonstrates the coexistence of wetlands and development.



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PLANNING  
AND  
DEVELOPMENT.

**E** NEWS

## HKIP Awards 2020

*Similar to the preceding years, the Institute received a number of submissions for the HKIP Awards this year. Eight HKIP Awards (i.e. three Silver Awards and five Certificates of Merits) and two Young Planners Awards were given on the recommendations of the Adjudication Panel, as follows.*

### Sliver Award

#### Transitional Social Housing Action Project: Ma Wan Old Village

Jockey Club Design Institute for Social Innovation  
C-lab Ltd.

WSP

Exploring land resources for transitional social housing (TSH) triggers re-imagination in the use of idle sites and dilapidated but robust buildings.

To illustrate how the deserted Ma Wan Old Village can be transformed through community building and urban integration strategies, the project has devised a TSH-included prototype scheme to systematically document the technical solutions and wider considerations that need to be taken

into account in reactivating idle sites to create sustainable communities.

While the developer is obliged to complete the development and continue the operations of Ma Wan Park in accordance with the terms set out in the Heads of Agreement, planners' ability to envision Phase II of the Park as a vibrant mixed-use community is the key to re-adjusting the approach for revitalising the Old Village. Ma Wan's complex planning history and local context, rapidly deteriorating building structures and inadequate infrastructure have posed compelling challenges to supporting sustainable growth and development. Nonetheless, the relative intactness of village houses in the Old Village provides an opportunity





to reintroduce village living and inject vibrancy and new purpose in the otherwise purely commercial development. The complex interplay of challenges and opportunities makes this site a unique case for a demanding test on how an inspiring vision, integrated master planning, heritage conservation, pragmatic engineering and socio-economic development solutions may help revitalise an old village into a vibrant community.

## Sliver Award

### Urban Ventilation Assessment and Wind Corridor Plan for Chinese Cities

Faculty of Architecture, University of Hong Kong  
 School of Architecture, Chinese University of Hong Kong

Chinese Academy of Meteorological Sciences  
 Division of Environment and Sustainability, Hong Kong University of Science and Technology

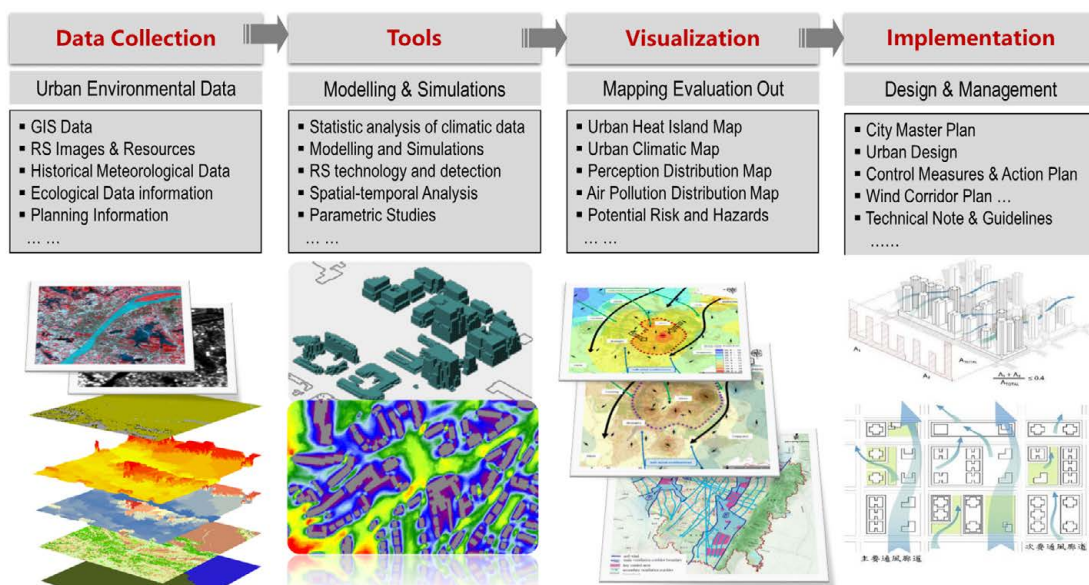
Department of Architecture, School of Design and Environment, National University of Singapore

Ronald Lu & Partners (Hong Kong) Ltd.

Institute of Future Cities, Chinese University of Hong Kong

PlanArch Consultants Ltd.

This is a pioneer study in the world to investigate and quantify effects of major planning and development proposals on urban ventilation. It is a cross-disciplinary collaboration to link urban form and building design parameters into urban ventilation considerations. Based on remote

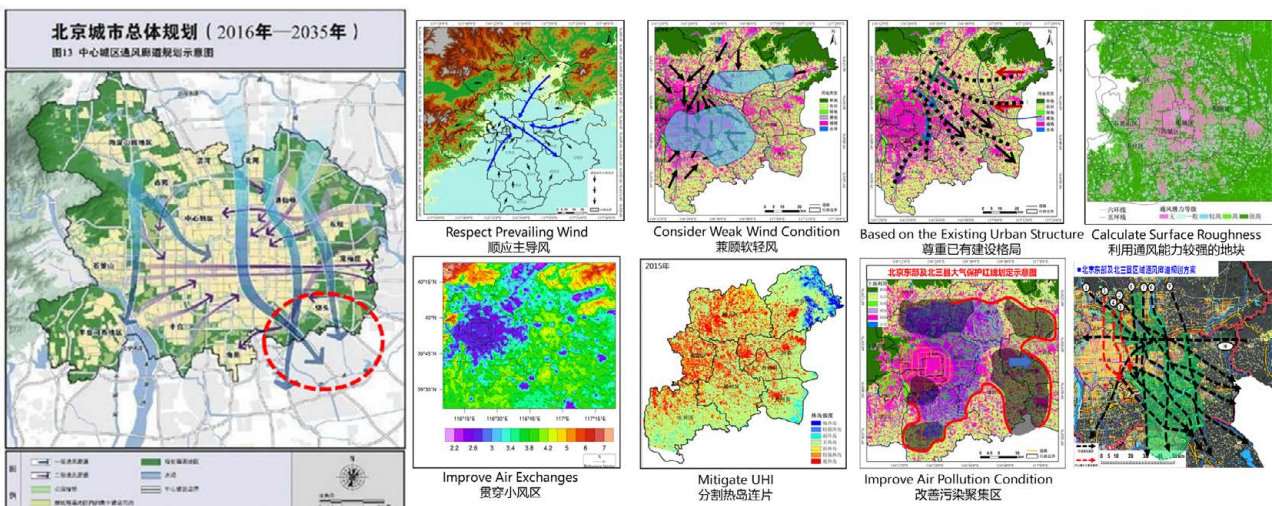


sensing and geographic information system techniques, it has developed scientific protocols to assess potential wind dynamics and create wind corridors. The workflow adopts a three-step approach and recommends two major urban ventilation corridor plans and two secondary urban ventilation corridor plans to local planners and policymakers.

The scientific evidence and findings of urban ventilation assessment could be used to optimise the design, height and disposition of buildings as well as urban morphology and to assist planning professionals to make a better decision at multi-scale levels.

Rapid urbanisation in China has deteriorated the urban environment. In recent years, the Central Government and local municipalities have introduced urban climatic evaluations into town planning and design practices, in particular to create urban ventilation corridors at city level. The

methods and techniques developed in the study have been adopted in the formulation of master plan, urban design and wind corridor plans of over 40 Chinese cities.



## Sliver Award

### The Conservation and Revitalizing Project of Huaxiang, Quanzhou, China

Tongji Architectural Design (Group) Co. Ltd.

Fujian No.5 Construction Engineering Co.

Situated in the ancient city of Quanzhou, Huaxiang is a lane with unique historical value. Endowed with a variety of invaluable artefacts and relics since the Tang Dynasty, the lane has been developed into a well-known shopping street of traditional handicrafts, containing collective memories of the local people. The main concern of planners in this project is not on conservation of the physical fabrics of the area, but protection of the authenticity, integrity and continuity of the historic lane. The project illustrates a new approach to conservation of the historic precinct by understanding the past through the history and physical structures, rather than writings by the historians.

The planning emphasis is on the integration of community participation and conservation of historic precinct through the provision of 'Realm of Memory' of Huaxiang, which not only preserves the collective memories of local people, but also reflects the contemporaneity and continuity of heritage conservation. Moreover, through the retention of rights of the existing residents to continue living and doing business in the area as well as increase in community space, the original home feeling of the lane is retained.



#### 具有風貌的傳統建築 Traditional building with historical features

拆除後期加建，恢復建築原有風貌  
Demolition of illegal buildings and  
restore the original style of the building



#### 風貌留存的建築 Building with featured elements

提取建築本身記憶構件用於立面改造  
Extract the memory components of the  
building itself for facade renovation



#### 特色缺失的當代建築 Contemporaneity building with missing features

運用當地同時期的典型設計手法，提升街  
巷整體識別性與時代感  
Use local typical design techniques of  
the same period to enhance the overall  
recognition and sense of the times



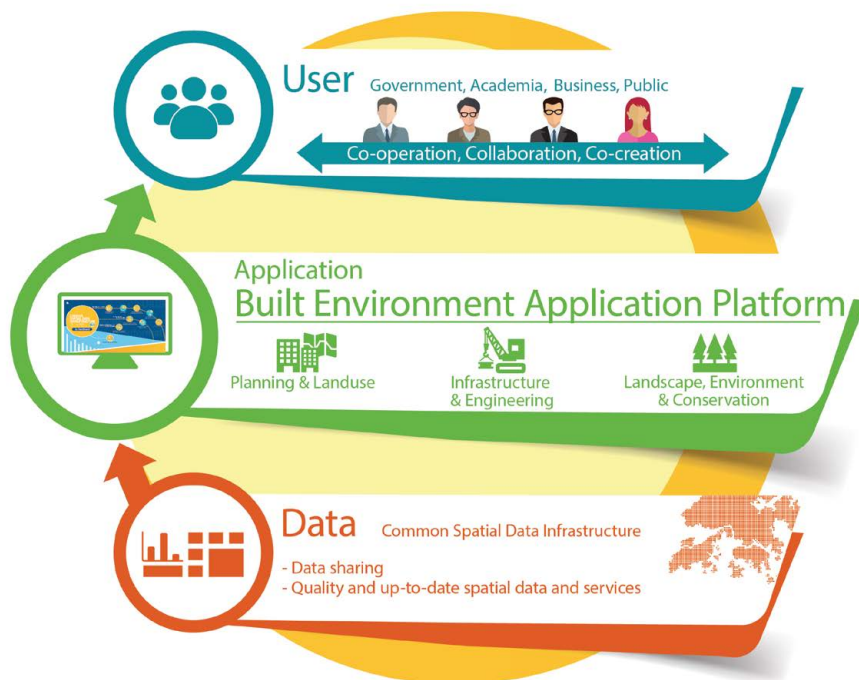
## Certificate of Merit

### Common Spatial Data Infrastructure – Built Environment Application Platform

Planning Department, HKSAR Government  
Ove Arup & Partners Hong Kong Ltd.

The Government is committed to develop the Common Spatial Data Infrastructure (CSDI) to provide bureaux/departments (B/Ds) as well as public and private organisations with a digital infrastructure to facilitate sharing of spatial data to support smart city applications. To tie in with the CSDI initiative, the “Development of a Common Spatial Data Infrastructure – Built Environment Application Platform (BEAP) – Feasibility Study” has explored the establishment of the BEAP and recommended potential built-environment applications, focusing on ‘planning and land use’, ‘infrastructure and engineering’ and ‘landscape, environment and conservation’ aspects, with

test cases to demonstrate the feasibility of implementation to facilitate Government B/Ds’ work. Upon implementation, the BEAP will help foster co-operation, collaboration and co-creation among Government bodies and among business sectors, academia and the public, to enhance efficiency and transparency for decision making in planning and development, thereby supporting Hong Kong to develop as a smart city.



## Certificate of Merit

### Quality Data to Support Quality Planning – Study on Existing Profile and Operations of Brownfield Sites in the New Territories

Planning Department, HKSAR Government  
Ove Arup & Partners Hong Kong Ltd.

Completed in November 2019, the “Study on Existing Profile and Operations of Brownfield Sites in the New Territories” aims to establish a clear definition and comprehensive data profile for brownfield sites in Hong Kong.

An effective means to tackle brownfield issues is through proper planning and development. In recent years, there have been strong public calls for developing brownfield sites for housing. Consolidation of brownfield operations, for example, into multi-storey buildings, can also address some of the land inefficiency and environmental/traffic problems. Under Government’s multi-pronged

land supply approach, nearly half of the brownfield sites in the New Territories are already under active planning or development, either in the form of holistically planned New Development Areas (NDAs), or individual development projects by the public and private sectors. In dealing with the rest, the comprehensive data collected, analysed and classified under the Study has provided essential information to review the 450 ha of brownfield sites outside NDAs with a view to identifying suitable brownfield clusters that may have potential for public housing development.



CLASSIFICATION OF POSSIBLE DEVELOPMENT POTENTIAL		
Distance from Existing New Towns	POSSIBLE DEVELOPMENT POTENTIAL	REVIEW BY PHASES
	Distance from Existing New Towns	
	Distance from Highways/ Major Roads	
160 <sub>ha</sub>	HIGH	COMPLETED
290 <sub>ha</sub>	MEDIUM	TO BE COMPLETED WITHIN 2020
250 <sub>ha</sub>	LOW	

## Certificate of Merit

### WAAT: A New Approach for Assessing Outdoor Walking Accessibility to Public Open Space in Hong Kong

Prof. Bo Sin TANG

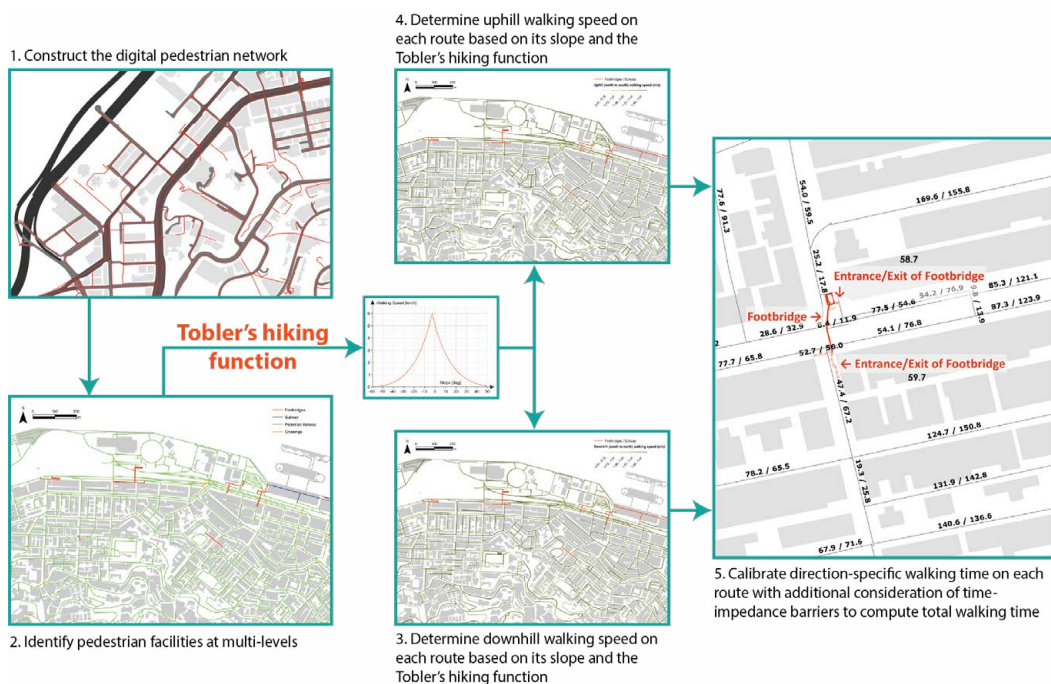
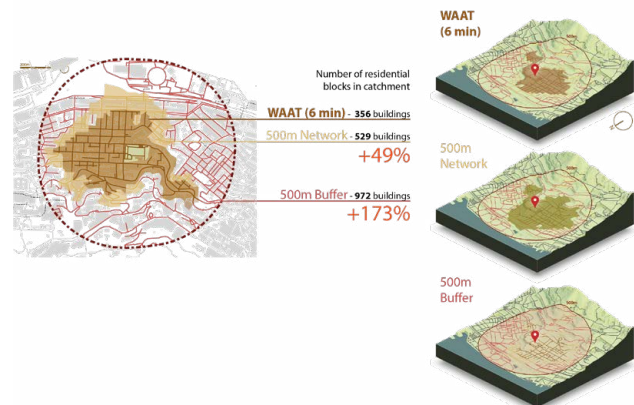
Mr. Kiu Ho Kenneth WONG

Dr. Siu Sing Kenneth TANG

Dr. Siu Wai Ivy WONG

WAAT (Walking Accessibility Assessment Tool) is a GIS-based planning tool which facilitates urban planners to plan and assess the walking accessibility of public open space (POS) in the comprehensive environment of Hong Kong. The analysis has been improved through considering additional factors, such as pedestrian networks, street topography, formal crossings, physical barriers to walking and designated access points. It also allows for uneven walking speeds of pedestrians, such that walking uphill is different from walking downhill.

Combined with the Gravity Model, WAAT can assist urban planners to evaluate the spatial distribution of POS in a planning area, compare the situations across different new towns/districts and identify possible improvement actions. Integrated with smart technology, WAAT helps urban planners to build Hong Kong into a walkable, smart and healthy city.



## Certificate of Merit

### Tackling Double-ageing with Double-smart

Mr. Kar-Kan LING, SBS

Ms. Karen LEE

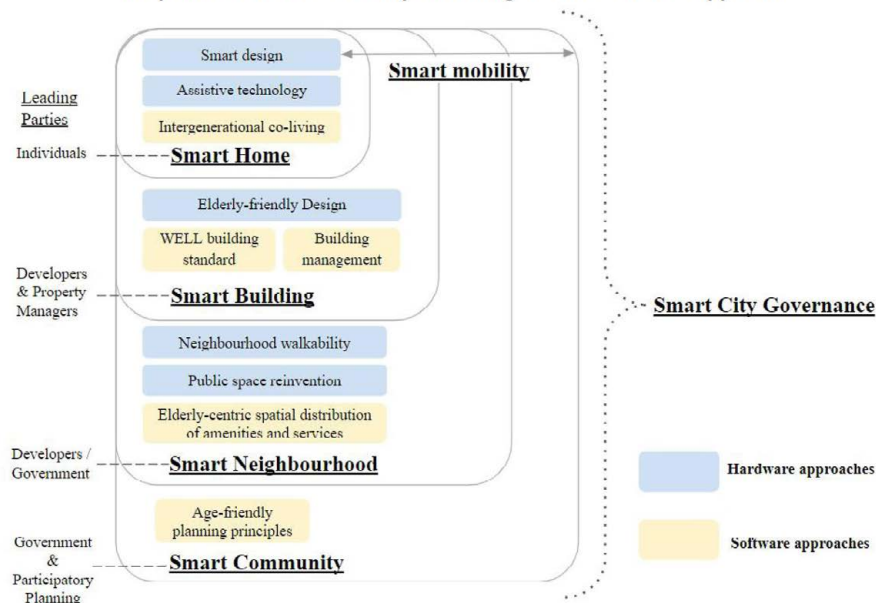
Double-ageing (ageing of population and ageing of building stock) is usually tackled as two separate subjects. The double-ageing phenomenon in Hong Kong is unique in the world in terms of its scale and complexity in light of the rapidly growing elderly population and the ultra-high building density worsened by stratified ownership.

A rising challenge is to shape the built environment in an innovative way to support the daily lives of users of all physical abilities and improve their health. More importantly, the community should also take into account the needs and aspirations of the present and future olds in the urban renewal processes to future-proof the city.

The study promulgates an integrated ‘double-smart’ approach, namely ‘smart ageing’ and ‘smart city’ to facilitate transition of city and empower our ageing population to remain socially active in their community. It illustrates how ‘smart home’, ‘smart building’, ‘smart neighbourhood’, ‘smart community’ and ‘smart mobility’ could each play its role to empower the ageing population to ‘age-in-place’ and guide the transformation of city. The ultimate goal is to sustain the elderly’s self-care abilities by applying smart ageing and smart city technology and design to each layer of their activity sphere to enhance the age-friendliness of city.



#### Conceptual Framework for Implementing “Double-smart” Approach



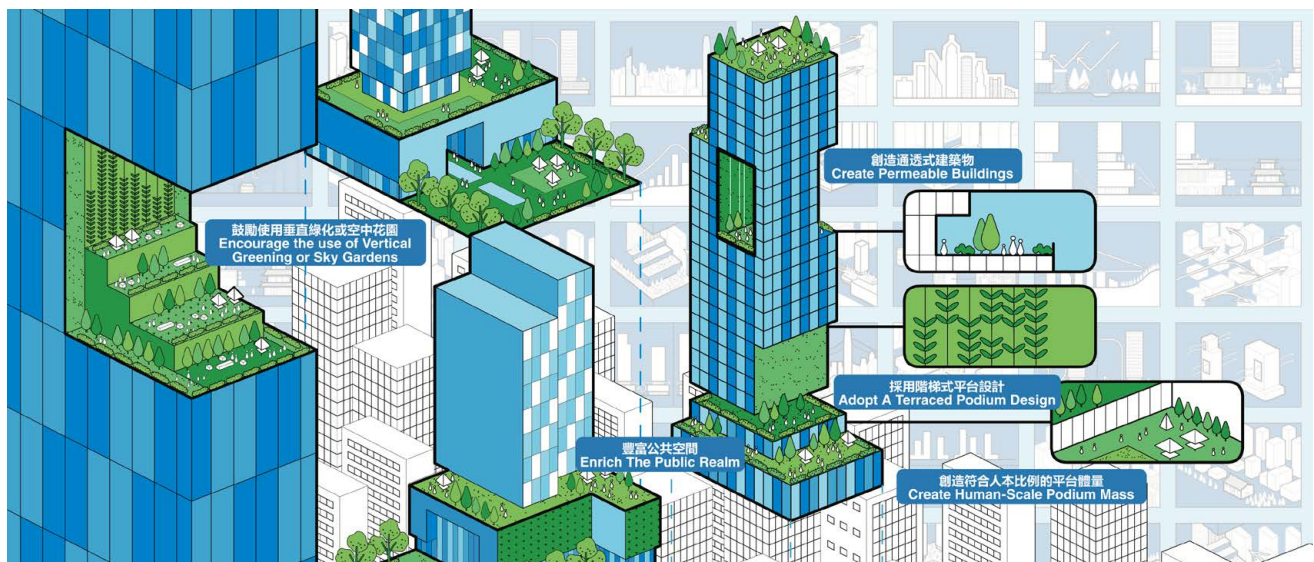
## Certificate of Merit

### Urban Design Guideline Revamp

Planning Department, HKSAR Government  
Farrells

Urban design is the art of making places for people. It is especially important in a compact and dynamic city like Hong Kong. The Urban Design Guidelines (UDG) addresses the three-dimensional relationship of buildings, spaces between and around them, and the surrounding landscape. To help create a liveable and

sustainable urban environment in Hong Kong, four overarching principles to put people first are formulated, namely responding to context, pedestrian-friendly movement network, engaging public realm, and people-centric building design. The revamped UDG are designed to be visually engaging and interactive, featuring distinctive color illustrations and images to draw readers in. A matrix is designed to navigate guidelines relevant to different project scales whilst a checklist with questions prompts readers to consider relevant





design issues.

The UDG are more than a set of guidelines. They represent an urban design vision that puts people first in the design of the built environment while embracing the city's distinctive natural assets and unique neighbourhood characters. The UDG are to support the strategic directions of the city as set out in Hong Kong 2030+ to improve liveability of the city with particular emphasis on climate mitigation and adaptation, pedestrian comfort, and well-being of the citizens within a dense urban context.

## Young Planners Award

### Mr. Cheuk Leung Brian CHAU

Brian is a professional town planner with diversified academic background. He was trained as a town planner in one of the most prestigious planning schools in the United Kingdom, the Bartlett of UCL, as well as one of the Ivy League universities in the United States, UPenn. Brian has worked in the public and private sectors, and is currently a town planner of Planning Department of HKSAR Government. His professional work covers district planning, planning research and territorial planning. Brian is actively contributing to the development of the planning profession through his services to the HKIP. During his term serving as the co-chairperson of the Young Planner Group, he together with a dedicated team of young professionals, made a number of firsts, including being the first group of young planners from Hong Kong to present at the Annual National Planning Conference in Nanjing and participated in an exhibition at the HK-SZ Biennale. Brian has served in various HKIP's committees and is currently in his second term serving as a Council Member.



## Young Planners Award

### Ms. Sin Kit Kate KWOK

Kate's journey as a town planner began when she entered the Master of Urban Planning (MUP) Programme at the University of Hong Kong. As a planning student, she participated in the Western Harbourfront Public Participation Programme which inspired her passion for people and community. To her, the beauty of working with local communities to solve problems and envision brighter future is the source of motivation to devote oneself into community planning and empowerment. After graduation, she has gained valuable insights from various positions in urban planning and transport fields in both public and private sectors. She has also been actively involved in voluntary community projects ranging from bottom-up planning initiatives to public education.

Through numerous collaborations with NGOs and communities, Kate has tried to demonstrate how public opinions could be systematically collected and incorporated into spatial planning proposals for implementation. More local groups, including District Councilors, residents' organizations, concern groups etc., have begun to see the value of community planning and reached out for professional support on communal affairs. She is proud to see that the presence of town planners in local communities has improved significantly in the past decade, thanks to the dedication of more



and more passionate planners. With planners' participation in more diverse local projects, we will be able to expand the boundaries of conventional town planning and further contribute to the sustainable development of Hong Kong.

# Transector Efforts to Build a Healthy City for Hong Kong

Fan Ning and Karen Lau

*Dr Fan is a surgeon and arboricultural technician. Through Health In Action (NGO), he pushes for healthy city through innovative community model. He is Assistant Professor at Medical School CUHK & HKU, Mentor of the JCSPHPC CUHK; member of Policy Research & Advocacy and Social Housing Movement in HKCSS; Advisor on Public Space, City Space Architecture.*

*Karen is a public health practitioner trained in global health and epidemiology. She has rich experience in the NGO, HKSAR government, and UN sectors.*

*(Editor’s Note: Dr. Fan delivered a talk to members of the fellow built environment professionals on the theme of healthy city in February 2021. Dr. Fan has kindly agreed to contribute this piece to the HKIP Journal for the benefits of our readers.)*

## Healthy City for the Ageing Hong Kong?

The Healthy City Strategy is guided by the vision of a ‘Healthy City for All’: a city where together we are creating and continually improving the conditions that enable all of us to enjoy the highest level of health and well-being possible. Vancouver

is one of the cities which puts a healthy city framework as the backbone of city development (City of Vancouver, 2015). This vision echoes with World Health Organization’s (WHO) appeal for ‘Health for All’ where there are a set of strategies and action plans aiming to achieve full health



Figure 1. Healthy City framework of Vancouver

potential for all people living in the community (WHO, 1999). This implies that health is a holistic well-being concept of community that focuses not only on diseases but also underlying social factors. Therefore, the goals of Healthy City are: 1) to promote and protect people’s health throughout their lives; 2) to reduce the incidence of the main diseases and injuries and alleviate the suffering, 3) to continuously improve quality of life from birth to end-of-life, and 4) it is inclusive and encourage active social participation.

Ageing society is a concern for everyone and the Hong Kong Government has a vision to implement Ageing-in-Place as well as Primary Care Development with a preventive mindset to combat increasing chronic diseases in community. To keep people as independent as possible until the

very advanced stage of life by building a health incubating environment could be the contribution from town planners. Interestingly, elements in healthy city merges with eight domains of Age-friendly City (Fig.2) (CUHK JC Age Friendly City, JCACP, 2021): outdoor spaces and buildings, transportation, housing, social participation, social inclusion & respect, civic participation and employment, communication and information, community support and health services. What about younger generations, ethnic minorities, disabled, new immigrants and other special groups? Health care is important but health care service alone would not be sufficient to make everyone healthy in the community. Staying active is well recognized as a pillar of maintaining physical, mental and social health.

We do believe that urban planners are key orchestrators to create the lively living environment where ALL citizens could have the opportunity to enjoy health, in the sense of having good access to health-enabling environments (hospitals and clinics, sports and recreation, green space, social space, healthy food access, reliable and timely health information), avoiding from public health toxins (all kind of pollutions, harmful environmental hazard like sewage, proximity to dangerous goods) and last but not the least transport-related hazards. From the public health perspective, these factors are called the social determinants of

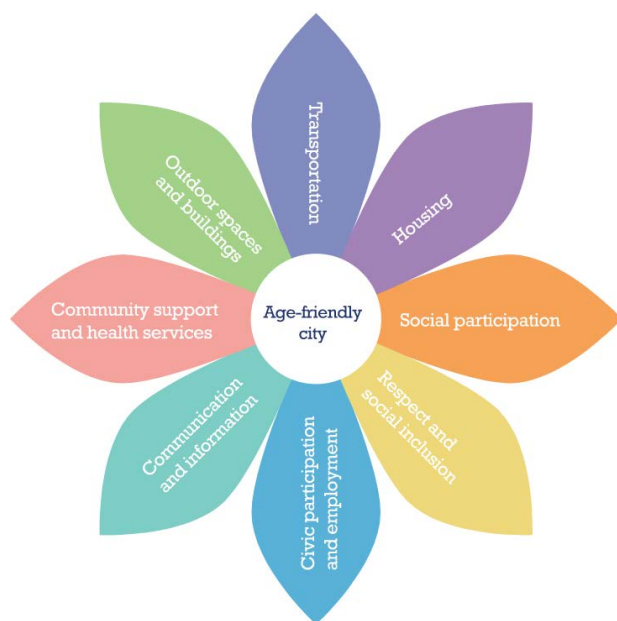


Figure 2. Eight Domains of Age-friendly City

health (SDH).

### Keeping Hong Kong citizens active and healthy needs transector efforts

Despite the COVID-19 pandemic, globally 71% of deaths are accounted by non-communicable illness. These include hypertension, diabetes, cardiovascular diseases, obesity and cancers. In Hong Kong, 55.9% of population have inadequate aerobic physical activity. It is no surprise that 48.2% of men are obese ( $BMI \geq 23$ ) while it is 30.5% for women (Department of Health, 2017a). The prevalence of hypercholesterolemia, hypertension, diabetes and cardiovascular diseases hit up to 25%, 28%, 7.7% and 16% respectively by 65 years-old (Department of Health, 2017b). 75% of elders > 65 years old suffer from one or more chronic illnesses. Quality of life at individual level as well as at family level are impaired.

We are lucky to be in this era to experience a lot of major medical breakthroughs. Paradoxically, advancement could not resolve our health issues as evident with rising trend of all kinds of chronic illnesses. Does this mean nothing could be done? Personally, we strongly believe that urban life and ageing population is not equal to having chronic illness (urban diseases) and fragility. With timely and appropriate implementation of public policies and through transector efforts, creation of enabling environment for active healthy living, early identification of risk factors leading to chronic

illnesses and early intervention could lead to a different path. We could enjoy independent life as long as possible and thus quality of life. On the other hand, the data globally showed managing socioeconomic environment is important to achieve the goals.

For working poor in Hong Kong, medical treatment and health maintenance are regarded as a luxury that comes last among other basic needs. Any available dollars are often used to fill the stomach of family members and then for children's education. In 2014, poor households in Hong Kong spent 39.7% and 31.4% on average of their money on housing and food, respectively, with both of these proportions higher than those reported for the general population (Census & Statistics Department, 2015). This means that they will have less resources on educational need, social life and community participation, access to information and finally health care. Data from CUHK (2020) has demonstrated that deprivation level of households; whereas housing cost per capita, living area per capita, and living quarter problems significantly influence deprivation and access to essential public services. For many of the group, they do not have the literacy to be aware of the risk in their work environment, while others choose to remain silent lest they would lose their jobs. Somehow, being employed does not mean that one is entitled to medical

insurance and paid sick leaves under the labour law, which in another sense, matters one's access to medical treatment. On the other hand, ethnic minorities often face information access issues, social exclusion and lack of education and job opportunities. In 2015, the Wisconsin County Health Bureau in the U.S. found that high-income families had 5.4 times fewer medical cases than low-income families, and in some disease types 10 times less. This is not limited to the U.S. but also evident in Hong Kong with research conducted in CUHK Institute of Health Equity. This is the reason why increasing budgets and resources in health care system could not create a healthy population as 60 to 70% of health issues are related to socio-economic factors, the SDH.

WHO has established that SDH can be addressed through transector efforts, including public health professionals, community leaders and workers, town planners, private sectors, local markets, environmentalists, and communities. The direction of collective efforts should be aimed towards creating a healthy living environment for all. It is not only about clean and fresh air but eating right and getting exercise as being fundamental to every individual's health. Nowadays having timely and right information, getting equal opportunity to education via digital means are extremely important, particularly since the COVID-19 pandemic.

### It is not about Housing only but a Healthy Community Context

The word community has many meanings. Commonly, it refers to all the people living in a certain geographic area, such as a neighborhood, district or city. Community can also mean people who share a common interest, not necessarily tied to one location, for instance, an immigrant community or professional community such as town planners. Broadly, community health refers to the health status and state of well-being of every individual and family who live in a defined geographic area. The goal of community health practice is to create a society where everyone lives in healthy communities and the benefit of good health is equally accessible to all. Issues such as lack of accessible health information, healthy food access, lack of social participation opportunities and thus short of social capital, loneliness, inaccessible green space, substance abuse, juvenile justice reform.

Unstable housing can result in disruptions to employment, social networks, education, and the receipt of social service benefits. In addition, lack of stable housing decreases the effectiveness of health care by making proper storage of medications difficult or impossible. It could also greatly impair conjoint effort in maintaining public hygiene, observe public health efforts to protect each other as during COVID-19 pandemic since unstable housing would lead to short of community

sense and ownership. Numerous evidences had pointed to substandard housing conditions such as water leaks, poor ventilation, dirty sewage system, and pest infestation have been associated with poor health outcomes. The following health issues are common in subdivided units (SDU)



*Figure 3. A primary school student studies in SDU*



*Figure 4. SDU residents were provided opportunities to cook and eat together in community kitchen (photos from Neighbourhood Kitchen)*

and congested living environment: asthma, skin problems, head lice, food safety, hygiene issues, communicable and contagious diseases, heat stroke, hypothermia, cardiovascular events—particularly among the elderly, mental stress, isolation related (elderly, disabled, socially exclusive), eye-sight issues, burn and electric shock, and fall related injuries. While good design of building and surrounding environments is important, reshaping of community in old districts needs innovative ideas and inputs from town planners and architects. There had been local community projects creating extended-living space for subdivided flats residents, providing dedicated community place for their use, with different social services available. Social networking could take place. The quality of life and thus the well-being and health of residents will be raised as there is focused resources investment.

When there is reconstruction work in old districts, how to maintain the social capital is important for town planners to work with local communities. Community resilience depends on restoring the neighborhood, creating more facilities to encourage social engagement to nurture the sense of ownership and willingness of contribution. Sociologists suggested that social segregation widens health disparities by determining access to schools, jobs, and health care. A good built environment which could



facilitate human engagement, provision of social supports and easy information access could make the difference. After all, this is what we all treasure: the 'Lion Rock Spirit'.

Improvement for community life and thus health could be installed in the design such as better access to one's job, grocery stores with nutritious foods, and safe spaces to exercise. Safe community with low crime rate, safe walking and cycling facilities to promote active mobilization and connection. Sedentary lifestyles are closely linked to planning and transportation decisions. People are unlikely to walk or cycle if it feels unpleasant or unsafe, or if distances make it impractical compared to driving, taking buses or MTR. Active transportation—walking, wheeling, cycling, boarding—allows people to make exercise part of their daily routine. When people use active transportation to get to a destination or to a transit stop, they make healthy and sustainable transportation choices that bring benefit at individual, family and community level. By making these modes safe, convenient, accessible, comfortable and delightful, this will positively affect the health and well-being of Hong Kong citizens of all ages.

Creation of 'greened' environment in highly condensed city could help to resolve respiratory diseases such as asthma and bronchitis and

allergic skin condition. Mental stress would be eased as well. Some studies even have evidence to suggest lowering of blood pressure and better sleep. Less visible but potentially even more important changes are neighborhoods' social characteristics, including encouragement of social exchanges and networking.

We have to bear in mind that working environment is part of community health for two major reasons: 1) working environment affects physical, mental and social health while the biggest group of hidden chronic illnesses is in working population, 2) nowadays individuals engaged with works is prolonged (1 in 5 Hong Kong employees are on the job an average of 55 hours per week in a survey in 2019) (Zhao, 2019). In recent years, specific employee health programs had gained popularity in the U.S. for maintaining health and well-being and thus contribute to productivity. This had encouraged employers to engage in building a culture of health within working places and to take relevant actions like improving indoor air quality, facilitating flexible working mode and time schedule, providing facilities for regular relaxation and mental health programs, stretching exercise and physiotherapy sessions, as well as ergonomic kits for carrying out works. The built environment will seek for more sunlight exposure, green outlook, trees and walking paths surrounding buildings. Some would install fun

exercise facilities for employees like wall climbing, dancing room, table tennis and even Pavigym. More concerns on prevention of harm to human from exposures to threats such as pollution and toxins in the building and the vicinity. In addition, whether the built environment could help to alleviate the issues like designs to reduce energy consumption, providing a healthier physique with more spacious design and greened environment, ease to reach for open space, designs to facilitate aerobic physical activities, like walking stairs in a pleasant context.

Finally, we should not forget how to make the environment socially inclusive such that people with different cultural background, languages, gender and ethnicity would be engaged. Recent studies also pointed to difficult access to green space like parks and recreational facilities for

groups like disabled and elderly in poverty as the streets and relevant transports in community is difficult for them. For working poor and low-income group, they face difficulties on access to seafront and country parks.

### Public Space is a luxury in Hong Kong?

Apart from healthy living environment and working place, healthy communities need a context to facilitate cultivation of connections now and into the future. Public space has economic, environmental and social values. From the health perspective, good use of public space which could promote active living and aerobic physical activities could reduce public expenditure on health care. Environmentally, it could help to reduce air pollution, energy consumption, noise nuisance as well as increasing ecological diversity. Socially, public space improves quality of life

City	% of open space	Open space per capita	Distance to open space
Bogota	international in-migration.	10 sqm	
Hongkong		2 sqm	
Johannesburg		24 sqm	
London			400 m
New York		10 sqm	
Singapore			400 m
Sydney			400 m
Stockholm			200 m
Vancouver			5 min
UN Habitat	15%		400 m
WHO		9 sqm	300 m
ECI			300 m
US EPA			500 m

Public space policy recommendations in nine world cities and four global organizations.

Table 1 Source: UN-Habitat 2018

especially for congested living families, sense of security, social equality, cultural vitality and social integration.

UN-Habitat defined public spaces are all places publicly owned or of public use, accessible and enjoyable by all for free and without a profit motive. It had urged all governments to formulate and implement sustainable urban development policies that promote use of public spaces such as streets, parks and markets to foster social, cultural, economic and environmental convergences so that all citizens have access to public spaces (Maclver, 2011). Public space usually takes up 15-30% of city land use, according to UN-Habitat. Sustainable Development Goal 11 stated that by 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities. WHO have proposed 'square meters of green space per capita' as a health indicator of sustainable cities and recommended at least 9 sqm green space per capita within 15 minutes walking distance. Hong Kong recommends only at least 2 sqm open space per capita which is far less than that of New York and UN recommendations (Table1) (Stähle, 2018).

Use of space in arts and culture is critical to building a vibrant, livable and healthy city. In the Vancouver Healthy City initiative, town planners

helped to facilitate arts and cultural events ranging from large scale performances, such as rock concerts or operas, to art galleries and exhibitions that allow citizens to observe and engage, to street festivals and small-scale community art projects. Each type of activity plays a different but important role in improving individual and collective well-being. Art and cultural activities often bring people together and can be an important antidote to social isolation. Their research suggested that participation in the arts can increase self-confidence and facilitate the development of creative as well as non-creative skills, such as



*Figure 5. SDU residents in Shum Shui Po organized to design, prepare for their Mid-Autumn Festival (Courtesy to Caritas HK Community Development Services)*

communication or organizational skills. In some cases, participation in community-based arts projects can empower people to express their ideas and provide opportunities for people to make their voices heard. At the community level, arts and cultural events foster the development of social capital and build bonds between different cultures and generations. Activities such as street festivals and public performances are a way to celebrate the cultures and contributions of diverse communities across the city.

Social networks are a critical source of life supports such as helping with food and shelter, finding a job, enhancing self-confidence, dealing with illness, healing from loss, to changing the conditions in which we live, work and play. It may be simply let us to enjoy ourselves and relieve stress. A sense of belonging, connectedness and engagement in the places and spaces that matter to us is critical for our well-being.

We all know that space is scarce in Hong Kong but I do believe that we could create space through design and social commitment.

### Town planners' key role in building Healthy City for Hong Kong

Town planners could be the city farmer who could provide nutrition for community. They can build healthy space which doctors and health sector could not achieve. There have been many

overseas projects (like in New York) showing collective impacts with involvement of town planners to reduce childhood asthma, prevent diabetes at all ages, promote social integration and social participation, relieve mental distress and depression of population.

Advancing objectives of the town planning while addressing social and health problems will be a win-win model for Hong Kong by now. Taking preventive mindset and need of technology support to combat the challenges of facing ageing population while avoiding younger generations to fall into chronic illnesses status, we have to act now on moving Hong Kong into a 'Healthy City'.

Being physically active throughout our lives is good for our bodies and our minds. Regular and adequate physical activity, whether for recreation, work or transportation, improves our health and reduces our risk of numerous chronic conditions. As children, physical activity supports healthy development of growing bodies and can help build social skills and encourage other healthy habits. In older adulthood, being physically active may reduce functional limitations, reduce risk of falling, and protect against cognitive decline. Natural spaces in an urban setting also influence the well-being of entire communities, lessening mental stress and improve quality of sleep. Easily accessible green spaces and public spaces can

improve social cohesion by providing sites for interaction and shared activities, thereby both fostering a sense of community and providing psychological benefits to its members.

These are not dreams but achievable in near future if everyone in Hong Kong from policy level to public level committed to work together to bring a new era for ourselves, our families and our next generations. Healthy City initiatives promote social inclusion and active participation which will benefit underprivileged and create a more just society which would gain widely supported across the society. After all, health is a good cause to align different sectors together as this is the universal common goal of everyone's life.

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# THE HENLEY

by HENDERSON LAND

## WORLD-CLASS ARCHITECTURE



Design concept of building facade<sup>1</sup>

- Perfectly situated at the forefront of Kai Tak City Centre, THE HENLEY embraces the Kai Tak Sports Park and the waterfront area, abutting the future Kai Tak Station Square where MTR Station is just few minutes' walk away.
- A view of splendour - some units enjoy the unparalleled views of the legendary Victoria Harbour, Kai Tak Sports Park and the future Metro Park<sup>2</sup>.
- 3-layered insulated glass units are used for part of the curtain wall system, allowing natural light flow in while providing better sound insulation.
- THE HENLEY is set to become a new architectural icon with its sleek and curvilinear facade; the glass curtain wall with geometric structure and framing design, innovative recessed balcony with materials such as granite and silverish metallic coating, create a sense of refined taste and modernity. The ultra-wide curved window designed for some of the units maximises the viewing experience by overlooking a stunning view of Victoria Harbour.
- Revolutionary energy efficient water cooled VRV air-conditioning system is firstly introduced in Hong Kong residential market.

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Wong Heung Wing	M396	Lo Yuk Man, Josephine	M436
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Wong Man Kan	M402	Ho Wai Hung	M442
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Lui Yu Man, Timonthy	M422	IP Wai Man, Emily	M463
Chow Wai Ling	M423	Leung Hoi Chun, Edward	M464
Wong Wai Yee, Michelle	M424	Lee Mei Fun, Rowena	M466
Lung Yan Cheung, Helen	M425	FUNG Mo Yeung, Patrick	M467
Lai Shin Kwan, Flora	M427	LAU Chun Him, Kenny	M468
Wong Oi Chu, Anna	M429	Ng Ka Wah	M470
YUEN Hou Yee, Angela	M430	YU Wai Kin	M471

Lee Kin Ki	M473	周珂	M520
Kan Ka Man	M474	吳濤	M521
Poon Chi Fai, Larry	M475	Cheung Ka Kei	M532
GOVADA Sujata Subbu	M476	Yu Lap Kei, Lake	M533
Leung Wai Yee	M479	Leung Hoi Ting, Jannie	M534
Lee Ki Na	M480	Chan Ka Wai, Karen	M535
Ng Wing Fai, Stanley	M481	Kwong Wang Ngai	M536
Lau Chi Fai, Stanley	M482	Wong Cho Wa, Ivy	M537
Chan Wing Chuen	M483	Au Pui Yu	M538
Luk Yin Sheung, Veronica	M484	Lee Ka Kay	M539
Wu Wan Yin, Winnie	M485	So Shuk Yee	M540
Yip Chi Kwai	M486	Wong Pui Sai, Kitty	M541
Chan Lai Cheung	M487	左泓	M544
Yeung Chi Shing	M488	吳曉莉	M546
Cheung Chi Ming	M489	何化忠	M550
Lee Po Kwan, Edmund	M490	王萍	M551
Ip Wai Yi, Alison	M491	Li Man Hon	M553
Lam Kin Ning	M492	Wan Hoi Ying, Helen	M554
Lam Mei Yee	M493	Fu Yee Ming	M555
Tang Po Kwan	M494	Wan Kit Man, Janice	M556
Yeung Shui Ling, Erin	M495	Cheuk Ching Ping, Jacqueline	M557
Amleni Cheuk Yuk Ming	M496	Chan Pak Kan	M558
Leung Kam Shing	M497	Chan Wai Lam	M559
Chan Tin Yeung, Joseph	M498	Mak Chung Hang	M560
王敏	M499	Li Sok Ching	M561
朱文华	M502	Yung Hung Tan, Nelson	M562
Hui Pui Yee, Pearl	M513	Chan Ka Ho	M563
Wong Wing Tak	M514	Mak Weng Yip, Alexander	M564
Lau Kar Kay, Alan	M515	Wong Hei Yin	M565
Fok Chi Wai, David	M516	Li Ka Sing, Charles	M571
Leung Pui Ching	M517	Yu Pui Sze, Canetti	M572
白晨曦	M519	Sze Yuen Ling, Gloria	M573

Chan Hong Lei	M574	Kwan Wing Fai	M615
Chiu Yin Ho, Kenneth	M575	Li Yee Ting	M616
Lui Tak Shing, Gary	M576	Leung Ming Yan	M617
Lo Sing Wun	M577	Tse Pui Lam	M618
Tong KARMIN	M578	Chau Cheuk Leung, Brian	M619
Wong Chung Lai, Frank	M579	Tam Ka Yan, Eva	M620
Ng Sze Nga, Gladys	M588	Lok Hom Ning	M621
Chan Chin Hung, Joe	M589	Cheung Ho Wing	M622
Lay Voon Hoong	M590	Choi Yat Nang	M623
Lee Wai Lam , Lirivs	M591	Cheung Siu Hung	M624
Leung Zin Hang, Ebby	M592	Ng Chui Yi	M625
Mou Ka Yan	M593	Chan Yuk Yee, Anna	M626
Lau Sau Yee	M594	Kwok Man Hin	M627
Wong Ho Yee, Katherine	M595	Lam Tsz Kwan	M628
Cheung Hiu Nam	M596	Lau Wai Cheung	M629
Lee Yik Ki	M597	Lo Janice Bryanne Wing Yin	M630
Chan Wing Kit, Kenny	M598	Poon Benson Fu Kit	M631
Kan Chung Sze, Sincere	M599	Wong Anita Mo Yin	M632
Fung Ka Wun, Edith	M600	Wong Pak Cheong, Kenneth	M633
Wong Chui Ying, Tracy	M601	Chan Cynthia Mou Yin	M634
Leung Lok Sze, Lucille	M602	Tang Yiu Chung, Daniel	M635
Chan Sin Ting, Sandy	M603	Tang Yik Ting, Edwin	M636
Lau Ka Wing	M605	Ho Man Sze	M637
Au Yue Yan	M606	So Lek Hang, Lake	M638
Au-Yeung Wan Man	M607	Wong Ngar Wing, Ada	M639
Kan Ka Lo	M608	Chan Ka Kei, Shirely	M640
Siu Yik Ho, Steven	M609	Chan Wing Tak	M641
Tsang Yik Ting, Floria	M610	Choi Man Kit	M642
Cheung Hoi Yee	M611	Kwok Sin Kit, Kate	M643
Wai Hiu Kwan, Apo	M612	Whitman, Kira Loren	M644
Lee Ka Ho, Kent	M613	Chu Suet Wa	M645
Sit Hing Yu	M614	Chung Ho Ting, Elton	M646

Luk Lok Yin	M647	Chiu Pak Him	M679
Cheung Ching Yan	M648	Ho Chi Kin	M680
Lok Mable Mei Bo	M649	Chan Ka Chi	M681
Wan Wai Yan	M650	Cheung Man Yee	M682
Cheung Ling Chi	M651	Wong Po Kit, Jeffrey	M683
Koon Sun Fai	M652	So Tsz Lui	M684
Law Yuk Ling	M653	Chan Yee Tak	M685
Leong Ka Ho	M654	Leung Sau Man, Esther	M686
Hung Ting Wai, David	M655	Law Ho Hei	M687
Fung Wing Hang, Mathew	M656	Tang Wai Lap	M688
Fung Chi Keong	M657	Lau Chi King, Vincent	M689
Lau Sze Hong	M658	Li Haniel	M690
Leung Sui Hei	M659	Ma Lai Kei, Vicky	M691
Leung Yin Cheung, Barton	M660	Sin Ho Ting	M692
Yip Kam Yee	M661	Tsui Ka Yan, Karen	M693
Lee Cheuk Hei	M662	Tse Chun Yu	M694
Chan Hoi Kei, Stephanie	M663	Kau Tin Chak	M695
Lau Tak, Francis	M664	Lau Sing	M696
Chan Distinction	M665	Lee Yin Ting	M697
Liu Ka Chuen	M666	Siu Carmen	M698
Pui Shan NG LI	M667	Elizabeth Ng	M699
Chan Yat Man	M668	Tsoi Tak Chun	M700
To Yuen Gwun	M669	Chow Chun Chi, Cecil	M701
Kan Cheung Heng	M670	Kwok Chung Kit	M702
Cheung Chui Ying	M671	Cheung Ming Kit	M703
Chiu Sung Ngai	M672	Law Ting Hin	M704
Woo Man Ching	M673	Lee Wing Sum, Winsome	M705
Kan Ka Ho, Calvin	M674	Ng Pui Shan	M706
Yeung Sheung Chi, Henry	M675	Wong Hon Yip	M707
Yeung Cheryl Hiu Lam	M676	Lee Ho Ching, Adrian	M708
Chan Ching Ching	M677	Tam Tsz Chung	M709
Wong Cho Ting	M678	Ho Kon Chung, Jeff	M710

Lau Ka Chun	M711	WONG Pak Ho	M743
Yeung Yun Wing	M712	Leung Shing Tak	M744
Yuen Cheuk Heng, Cherry	M713	Yik Shuk Yee	M745
Chan Chun Yim	M714	Ma Ka Chun	M746
Chan Hiu Yan, Sharon	M715	Ling Chi Ho	M747
Chui Loreen	M716	Duen Long Yee	M748
Ho Joseph Junior	M717	Shum Carlson Ka Chun	M749
Tang Wai Shan, Sandi	M718	Ngan Mui Chun	M750
Chan So Man	M719	Ng Ka Kit	M751
JIA Ying Zi	M720	Kwan Chuk Han	M752
Wai Che Hong	M721	Ng Sheldon Ming Sum	M753
Wong Tsz Hei, Alice	M722	Wu Long Chi	M754
Yan Wing Yin	M723	Lo Yan Ki	M755
Chung Wing Yee Vanessa	M724	Tsui Pik Chun	M756
Lee Wing Ki	M725	Lo Man Chi, Gigi	M757
Kok Man Chun	M726	Tam Yee Ting	M758
So Sin Man	M727	Lam Sau Yin	M759
Tsang Hin Chi	M728	Lau Sin Yee	M760
Tsang Tsz Yan	M729	Wong Man Kwan	M761
Wong Sau Yin	M730	Liu Sui Chun	M762
Wong Pok Shaan	M731	Lau Han	M763
Li Si Juan, Emerson	M732	Lin Ka Wai	M764
CHOW Chi Fung	M733	Chan Hoi Ming, Jaime	M765
Lo Sum Yuen, Angela	M734	LEE Lok Man, Joyce	M766
Law Pui Lam	M735	Ho Nga Sum Clarice	M767
Cheung Ka Kan	M736	Andre David MORKEL	M768
WONG Tak Wun	M737	TANG Long Ying	M769
IP Ka Wing, Helen	M738	KU Yiu Chung	M770
AU Ho Cheong	M739	KO Oi Ching	M771
CHAN Pui Shan, Theodora	M740	CHEUNG Yeung Mei	M772
WONG Yuet Lun	M741	TAM Raymond Chi Ho	M773
HUNG Chi Wai	M742	WONG Cheuk Man	M774

TANG Ho Kiu Howard	M775	Chan Chun Fung, Michael	R53
HO Sin Ying	M776	Cheng Lai Sum, Lisa	R54
<b>Retired Members</b>		Fishley David John	R55
Kwok Tze Yu, Henry	R06	NG Yuk Hing, Serena	R56
Siu Lai Yee, Maria	R12	Au Yu Lun, ALan	R57
Yeung Kam Chiang, Stewart	R13	Ho Kim Kam, Bonita	R58
Chau Cham Son	R16	Chiu Ming Cheong, Ronnie	R59
Woo Chi Sun	R18	Woo Kit Ching, Jacinta	R61
Kwan Tsoi Kwai, Anthony	R20	Cheung Wa On	R62
Li Chi Kwong	R22	FONG Tak Shiu, Teresa	R63
Ho Siu Che, Winnie	R26	Chan Po Ling, Margaret	R64
Chan Yim Chi, Doreen	R28	Chum Yan Leung, Phillip	R65
Chan Ip Wai Nor, Catherine	R30	Ng Mun Sing	R66
Chan Pun Chung	R32	<b>Student Members</b>	
Wong Oi Yee, David	R33	Mok Wai Man, Karina	S325
Lam Ho Ka Yin, Angelica	R34	Lo Wing Yee	S329
Wong Wai Man, Raymond	R35	Lam Yuk Ching, Connie	S341
Lui Chun Wan, Alex	R38	Tang York Wan, Angela	S369
Fan Siu Wah, Connie	R39	Yap Kwok Keung, Kevin	S375
Ling Chi tak	R40	Hurlow John Philip	S410
So Ying Leung, Wilson	R41	SUN Kwok Kee	S461
Lee Shu Wing, Ernest	R42	IP Chi Tim	S522
Woo Man Yee	R43	LEE Chun Kit	S529
Tam Tai Wai, David	R44	Tsang Yi Ching, Vivian	S575
Leung Mi Ching, Cecilia	R45	Fung Wing Sze	S576
Chu Hung, Viola	R46	Cheung Ka Chun	S583
Chan Chung Shing, Harry	R47	Lam Wing Ching, Chrisilia	S585
Li Pui Leung	R48	Wan Cheuk Wai	S589
TSO Yiu Nam, Tony	R49	Luk Siu Chuen, Thomas	S599
Fong Kwok Wing, Peter	R50	Choi Kam Lung, Franky	S602
Yau Chap Ho	R51	Wong Hang Yee	S616
Kwan Ping Chung, Benny	R52	Cheng Man Wah	S625

Chan Dick Sang, Philip	S630	Wong Wing Tsung, Anthony	S887
Li Wai Kit	S655	Chun Wan In	S891
Yau Sau Yee, Sophie	S666	Chan Chi Hang, Ronald	S894
Serena Tong	S667	Lee Si Wai	S900
Cheng Ka Man, Clement	S673	Ngai Hoi Yan, Janet	S907
Wu Ho Kei, Maggie	S693	Fu Hoi Him, Nicholas	S914
Chiu Wai Yee, Betty	S694	Wong Delius Ho Ki	S917
Leung Wai Kit, Ricky	S699	Cheung Hung Man, Horman	S926
Tam Chi Ho, Raymond	S703	Lam Ka Wai	S931
Chiu Chi Yeung, Eric	S708	Li Mei Huen, Madelene	S933
Chan Che Ho, John	S733	Liu Ka Chun, Firn	S934
Lam Tat Leung	S736	Wan Jolie Pui Kei	S939
Wu Peter	S746	Yu Tze Yan, Amanda	S940
Mak Tsz Wai	S748	Au Hei Man	S941
Wei Daniel James Cherk Hung	S781	Chan Hiu Man	S942
Ho Wing Hei, Nancy	S796	Ho Jacqueline Lily	S944
Ma Chiu Ming	S810	Lau Chui Yu	S946
Chan Ka Wing, Connie	S815	Kong Tsz Ming	S947
Choy Yik Fung, Edwin	S818	Li Man Kit	S948
Mo Cui Yu	S832	Li Pak Ka, Rebecca	S949
Chan Lok Ting	S840	Leung Jessica Cheuk Yan	S951
Mak Ka Lam, Ariel	S846	Ng Kun Fung, Mathew	S952
Tse Kit Ha, Jacqueline	S847	Yang Min	S957
Au Yeung Kwan	S856	Choi Wai Yin	S959
Kwok In Wai	S861	Chung Pak Hin	S960
Li Chun Yu	S863	Chow Ho Yan, Claudia	S962
Wang Hai Tian	S866	Lai Sze Fat	S963
Zhang Yuan	S870	Au Wing Yee	S967
Chen Ting Ting	S871	Chan Chi Yui, Cyril	S968
Lang Wei	S873	Chan Chun Yan Robin	S969
Lau Ho Yee	S883	Cheng Ka Yan, Aileen	S970
She Gee Chun	S884	Cheung Yeung Mei	S972



Chung Ho Ching	S973	Wong Kiu Ho	S1029
Chung Wing Hong	S974	Cheng Leon Hiu Fung	S1031
Fok Ivy Ho Yan	S975	Ng Fook Yee	S1033
Hau Yat Long	S976	Liao Yan Hong	S1034
Ho Hiu Fai	S977	Tse Hiu Lam	S1036
Kong Sze Wai	S979	Wong Tim Shun	S1037
Kwan Hiu Tung	S980	Kung Lok Ting	S1038
Lai Wai Ching	S981	Kong Wing Sum, Sam	S1039
Tai Lok Yee	S986	Cheng Wai Yeung	S1040
Tam Yuen Ting, Edie	S987	Lam Lok Ka	S1041
Wong Cheuk Man	S990	Chong Yuen Ting	S1043
Wong Kai Nang	S991	Rachel Lo	S1045
Wong Kit Chuk	S992	Lim Tse Kang, Mark	S1046
Wu Pak Yan, Martin	S995	Au Yuen Yau	S1047
Yeung Wing Yee	S998	Chan Kei Yee	S1048
Yim Shiu Man, Natalie	S999	Mak Pui Man	S1049
Moonifer LI	S1003	Wong Chun Ki, Derek	S1050
LEE Lok Man, Joyce	S1005	Wong Yi Ching	S1051
TAI Long Him	S1006	Chow Long Hei	S1052
Chan Yan Hang	S1008	Yeung Wing Man, Cheryl	S1054
Chau King Fung	S1009	Tang Ho Kiu	S1055
Lee Chi Lap Jacky	S1010	Shahneez Haseeb	S1056
Fung Ka Lok	S1011	Chiong Hoi Yan	S1057
Kwok Man Heng, Jessie	S1012	Chen Chu Ying	S1058
Law Tze Wai	S1013	Chung Ho Ching Hillary Charlotte	S1059
Leung Pik Kwan	S1014	Lee Ka Kan	S1060
Leung Kwok Ling, Angela	S1015	Tai Yik Shing	S1062
Ng Si leong	S1016	Yeung Wai Shing	S1063
Yim Hoi Yan	S1018	Kong Ka Chun	S1064
Yang ManQi	S1019	Chan Tsz Chung, Alexander	S1066
Chan Yuk Yee	S1020	Tam Kai Hong	S1068
Kong Man Wa	S1023	Wong William Shu Tai	S1070

Wu Kit Shan	S1071	HE Lihua	S1104
Tam Sin Ying, Magdalene	S1072	HE Yisi	S1105
Ng Hoi Ying	S1073	Ho Irene Yuk Hay	S1106
Chui Ho Yin	S1074	Huang Chi Ho	S1107
Lau Adolphus Yik Chun	S1075	Law Cho Yin	S1108
Lau Kam Fung	S1076	Novas Igloo	S1109
Wong Hei Lai, Hilary	S1078	Cheung Kin Yi	S1110
Szeto Wai See	S1079	Cheng Chi Chiu	S1111
Chao Wing Sze Catherine	S1080	Lam Elkie Oi Kiu	S1112
Yam Hiu Tung, Myra	S1081	Lau King Yat	S1113
Law Shin Yan	S1082	Leung Charissa Chi Yan	S1114
Chan Hung Hing	S1083	Mok Pak Hei	S1115
Cal Xiao Lei	S1084	Tam Tsz Ho	S1116
Lau Hei	S1085	Tse Wai Hing	S1117
Wong Ching Nga	S1086	Tung Benjamin	S1118
Yip Tsz Laam	S1087	Yeung Sin Yee	S1119
Ho Sin Ying	S1088	Yip Long Ting	S1120
Chan Elden Chun Hei	S1089	Yuen Sik Kiu Heather	S1121
Chu Wing Sing	S1090	Cheung Man Lei	S1122
Kan Sze Nok Sharon	S1091	Chan Chun Yin	S1123
Lam Chin Chin	S1092	Chan Lok Hang	S1124
Lam Lok Yan	S1093	Chan Yik Fung	S1125
Leung Shut Ming	S1094	Lee Ming Wai Vivian	S1126
Lin Nga Ki	S1095	Leong Sin Ying	S1127
Wong Lik Yi	S1096	Lok Tsz Yin	S1128
Yiu Sze Wing Rachel	S1097	Man Ho Yin	S1129
Chan Wing Fung	S1098	Ng Cheuk Yee	S1130
Choy Tsz Hin	S1099	Tang Yuen Ting	S1131
Tang Wai Cheong	S1100	Tsang Tsz Man Cheryl	S1132
Tsang Derek Yik Shun	S1101	Tse Yi Lam	S1133
Chu Ka Hing Wilfred	S1102	Wong Yui Hin Isaac	S1134
Zhu Weihai	S1103	Au Ka Hin Ally	S1135

Chan Chun Yin Jason	S1136	<b>Affiliates</b>	
Chan Yin Tung	S1137	William Ho Kwan Pak	A-02
Hau Hei Man	S1138	Lau Man Kwan, Julia	A-04
Kam Hin Wa	S1139	Paulus Johannes ZIMMERMAN	A-05
Lee Ho Him	S1140	Yew Yat Ming	A-06
Lam Long Yin	S1141		
Pun Kwai Lui	S1142		
Wong Hei Ting	S1143		
Wong Sek Hei	S1144		
Yip Margaret Oi Lam	S1145		
Lee Cheuk Hung	S1146		
Lau Ching Kei	S1147		
Wun Tsz Wing	S1148		
Kwok Ching Laam	S1149		
Li Ka Ho	S1150		
Chan Hon Yu Louisiana	S1151		
LAI Chung Hon	S1152		
LAU Ka Ching	S1153		
PANG Chor Kiu Valerie	S1154		
YING Pui Yan	S1155		
TAM Ho Ming	S1156		
CHAN Natalie	S1157		
CHIM Christian Warwick	S1158		
LEE Yuen Wing	S1159		
LAU Wai Kan	S1160		
LAU Nga Yee	S1161		
LI Chun Wing Matthew	S1162		
LO Hui Shan Sandra	S1163		
TAM Wai Yee	S1164		
Chan Chui Ling	S1165		
Lin Wendy Man Yi	S1166		
Wong Lok Kiu Larissa	S1167		

## List of Registered Professional Planners (as at October 2021)

1	CHAU CHAM SON	周湛樂	122	HO YING KWONG	何應光
7	PUN KWOK SHING	潘國城	127	LAW MING	羅民
9	TSANG CHING LUN EDWIN	曾正麟	128	NG SUK KWAN	吳淑君
10	YEH GAR ON ANTHONY	葉嘉安	130	LAM BO YIN	林寶燕
11	TAM PO YIU	譚寶堯	132	AU HEI FAN	區晞凡
15	AU KIT YING BRENDA	區潔英	134	AU CHEUNG MING	區長明
17	TANG SIU SING	鄧兆星	137	CHENG WAN YING JOHANNA	鄭韻瑩
28	TANG BO SIN	鄧寶善	139	YIP OI FONG	葉愛芳
29	CHAN KIM ON	陳劍安	142	BLACK, PHILLIP DOUGLAS	寶力勤
30	TAM SIU YING IRIS	譚小瑩	146	CHAN PAK HAY, SIMON	陳栢熙
34	CHUNG MAN KIT IVAN	鍾文傑	147	LAM SAU HA	林秀霞
38	HO SIU FONG BETTY	何小芳	148	LAM TAK KEUNG	林德強
39	LEUNG CHEUK FAI JIMMY	梁焯輝	149	LAW TAT PONG	羅達邦
42	LAI WAI CHUNG LAWRENCE	黎偉聰	151	TANG MAN HUNG, ROGER	鄧文雄
44	TANG YORK MAY AGNES	鄧若薇	152	WU MING YEE AMY	胡明儀
45	TAM TZE HOI	譚子愷	154	CHU HA FAN	朱霞芬
46	AU WAI KWONG ELVIS	區偉光	156	MACDONALD ALAN FORBES	
47	YEUNG CHI WAI	楊志威	157	CHAN HAU YIN MARGARET	陳巧賢
66	PANG CAROLINE Y.	彭浣儀	158	NG KIM WAI	吳劍偉
69	SEDDON KAREN ROSE	薛嘉蓮	160	HUI CHI MING LAWRENCE	許自明
72	TO LAP KEE	杜立基	162	KAN KWOK CHEE JOSHUA	簡國治
73	WONG SHUN WUN REBECCA	黃舜浣	164	CHIU SUNG PAK EDMOND	趙崇柏
79	LING KAR KAN	凌嘉勤	165	TAM YIN PING DONNA	譚燕萍
87	PETER COOKSON SMITH		166	LAU CHI TING	劉志庭
92	BROWNLEE IAN THOMAS		167	LUK KWOK ON	陸國安
93	LEE SHU WING, ERNEST	李樹榮	169	YUEN SHING YIP KEPLER	袁承業
96	NGAI SIK KEUNG	倪錫強	170	YIU CHIN, STEVE	姚展
98	NG CHEUK YEE JOHN	伍灼宜	172	TANG TSUI YEE, CAROLINE	鄧翠儀
99	MAK HOI CHEUNG EUNICE	麥凱薈	174	HUI CHAK HUNG DICKSON	許澤鴻
101	LO YU KWAN, RUPERT	羅如琨	175	YIU KUK HUNG, PORTIA	饒菊紅
103	YU LAP KEE	余立基	179	WONG CHUN KWOK	黃鎮國
104	CHEUNG YI MEI AMY	張綺薇	180	HO CHI WING	何智榮
105	WONG LAP KI	黃立基	181	WONG WAI YIN, PATRICK	黃偉賢
108	CHAU YAT CHEUNG LAWRENCE	周日昌	182	SIU WAI YIN, FLORENCE	蕭瑋賢
111	CHAN HOI YUN HELEN	陳凱恩	186	LI MAN WAI KENNETH JOHN	李民威
113	WONG WAI MAN GINA	黃慧敏	188	YOUNG PUI YIN, EDWIN	楊沛然
115	WONG YUEN SHEUNG OPHELIA	黃婉霜	189	LO SUI YAN PHILIP	盧瑞忻
117	CHAN TAT CHOI TED	陳達材	190	NG WING FAI STANLEY	吳永輝
118	PANG LAI FAI, WILLY	彭禮輝	193	LEONG YEE TAK YVONNE	梁懿德
120	LEUNG SHU KI	梁樹基	200	LEUNG PUI CHU	梁佩珠

201	LEUNG YIP HUNG RAYMOND	梁業鴻	270	LEUNG KWOK MAN LAUTREC	梁國民
203	FUNG MO YEUNG PATRICK	馮武揚	273	LAI SHIN KWAN FLORA	黎倩君
205	CHEUNG CHO LAM	張祖霖	274	LO YUK MAN JOSEPHINE	盧玉敏
206	NG KWOK LEUNG, STEVEN	吳國良	275	LEE WAI YING JOANNA	李慧瑩
208	TSE PUI KEUNG	謝佩強	276	YANG CHING	楊倩
210	SUN CHE YUNG DEREK	孫知用	278	TSANG HUNG SHEEBA	曾紅
213	CHEUNG CHI KEUNG SIMON	張志強	280	LO WING YEE	盧穎儀
214	LAI PIK HUNG	賴碧紅	281	LEE SIN YEE CINDY	李倩儀
215	TSANG WING KEUNG	曾永強	282	YUEN MAN SIN	阮文倩
217	CHAN WAI YI	陳慧儀	287	LAM MAN YING, JOSEPHINE	林敏瑩
218	TANG WING KEUNG	鄧永強	288	LUNG YAN CHEUNG HELEN	龍欣翔
219	LAM LIT KWAN	藍列群	291	CHOW MAN HONG	周文康
221	LAM YUK CHING	林玉清	292	CHAN KWUN HANG COWAY	陳冠恆
224	CHAO TAK SUM TERENCE	巢德森	294	CHAN KOK YUN	陳國欣
226	LAW CHUN PONG	羅振邦	295	LIU CHUNG GAY, SHARON	廖頌基
227	WU YUK HA	胡玉霞	296	LAU KIT YING	劉潔瑩
228	CHEUNG YUK YI ALICE	張玉儀	297	NG KA WAH	吳家華
230	WONG MAN KAN	王民勤	299	LAM MEI YEE	林美儀
232	CHEUNG SIMON	張業文	300	CHAU YIN MAI, LISA	周燕薇
233	YEUNG WING SHAN THERESA	楊詠珊	302	LEE THOMAS	李建華
235	YAM YA MAY LILY	任雅薇	304	CHANG MING LAI REGINA	張明麗
236	TAM KIT I	譚潔儀	306	LAU TAK FRANCIS	劉德
237	WONG CHIU SHEUNG	黃超常	308	LEE KIN KI	李建基
238	CHOW WAI LING	周惠玲	309	CHAN LAI CHEUNG	陳禮璋
243	AU CHIN PANG	歐展鵬	310	KAN KA MAN	簡嘉敏
244	TSANG CINDY ANNE LEE	曾思蒂	314	LUK SIU CHUEN	陸紹傳
245	AU CHI WAI DAVID	區志偉	315	LUK YIN SHEUNG VERONICA	陸迎霜
247	POON KAI LOK	潘啟樂	316	NG HIU MING HERMAN	吳曉鳴
248	CHAN KING KONG THERON	陳勁剛	317	LEE KA KAY	李家琪
250	TONG PO WONG EMILY	唐寶煌	319	SIU KA LAY, GRACE	蕭嘉莉
251	SO YUET SIN	蘇月仙	320	IP WAI YI, ALISON	葉慧儀
252	SO OI TSZ, TERESA	蘇愛慈	321	YEUNG SHUI LING	楊瑞玲
253	NG WAI MAN	吳慧敏	322	HUI PUI YEE, PEARL	許貝兒
255	MOK KWOK CHUNG DICKSON	莫國忠	323	FOK CHI WAI, DAVID	霍志偉
256	WONG YUK LING	黃玉玲	324	WONG PUI SAI, KITTY	黃沛茜
258	KWAN YEE FAI, MIKE	關以輝	325	MAK CHUNG HANG	麥仲恆
259	SZE LAI HUNG	施麗虹	326	FU YEE MING	傅義明
260	LAU FUNG YEE	劉鳳兒	327	CHAN SUET YING, CARMEN	陳雪盈
264	CHU WING HEI, ALVIN	朱永熙	328	CHEUK CHING PING JACQUELINE	卓靜萍
266	TSANG WAI MAN, VIVIAN	曾慧雯	329	TANG PO KWAN ANNY	鄧保君
267	LAM KWOK CHUN	林國春	331	YUNG HUNG TAN, NELSON	翁胸坦
268	WONG WAI YEE MICHELLE	汪慧兒	332	LAU KAR KAY, ALAN	劉家麒
269	CHAN SHUK WAH ANNIE	陳淑華	333	WONG HEI YIN JULIAN	黃曦然

334	YU PUI SZE CANETTI	余佩詩	381	TANG WAI LAP	鄧偉立
335	CHAN TIN YEUNG JOSEPH	陳天揚	382	AU YEUNG KWAN	歐陽坤
336	LI KA SING CHARLES	李嘉聲	383	LAU SZE HONG	劉思航
337	LEE CHUN KIT	李俊傑	384	MO CUI YU, CHARLENE	莫翠瑜
339	HO KON CHUNG	何幹忠	385	FUNG WING HANG, MATHEW	馮穎洺
340	NG SZE NGA GLADYS	吳詩雅	386	LEUNG MING YAN	梁銘茵
341	AU PUI YU	區佩瑜	387	LEUNG YIN CHEUNG, BARTON	梁彥彰
342	LEE MO YI	李霧儀	388	YIP KAM YEE	葉甘飴
343	LO SING WUN	盧星桓	389	KAN KA HO CALVIN	簡嘉豪
344	CHAN PAK KAN	陳伯勤	390	WONG CHO TING	黃楚婷
345	LO OI LING CHRISTINA	盧愛玲	391	TAM TSZ CHUNG	譚子聰
347	LAU SAU YEE	劉秀儀	393	CHOW CHUN CHI, CECIL	周振之
349	LEUNG ZIN HANG EBBY	梁善姮	394	WAI CHE HONG	韋志康
350	CHAN HONG LEI	陳康妮	395	PANG YIU FAI	彭耀暉
351	SIU YIK HO STEVEN	蕭亦豪	396	CHAN CHI HANG, RONALD	陳智恒
352	TANG KING YAN SUNNY	鄧敬恩	397	LEE YUEN YAN KATHY	李婉茵
353	LO JANICE BRYANNE WING YIN	盧穎妍	398	WU LONG CHI	胡朗志
354	CHENG KA MAN, CLEMENT	鄭加文	399	CHENG WAI YEUNG	鄭瑋暘
355	LOK HOM NING	樂晗寧	400	WU PETER	吳宗翰
356	IP PAN WAI	葉斌緯	401	LO MAN CHI GIGI	盧曼芝
357	CHEUNG HO WING	張浩榮	402	CHAN WING YAN	陳穎昕
358	AU-YEUNG WAN MAN	歐陽允文	403	LEE SI WAI	李思慧
359	CHAN WING KIT, KENNY	陳榮傑	404	TSUI PIK CHUN	徐碧珍
360	FUNG KA WUN, EDITH	馮嘉媛	405	WONG SIU MEE	黃少薇
361	KAN CHEUNG HENG	簡昌恆	406	WONG CHUNG LAI FRANK	黃仲灃
362	POON FU KIT, BENSON	潘富傑	407	LEE YIK KI	李翊淇
363	WHITMAN KIRA LOREN		408	YUE LIT FUNG OWEN	余烈鋒
364	CHAN MOU YIN, CYNTHIA	陳慕然			
365	HUNG TING WAI, DAVID	洪定維			
366	LEONG KA HO	梁嘉豪			
367	CHEUNG HOI YEE	張凱怡			
369	HO WING HEI, NANCY	何穎曦			
370	WONG CHUNG YING	黃忠瑩			
371	YIP SIU KWAN, SANDRA	葉兆筠			
372	LAM TSZ KWAN	林芷筠			
373	LAW HO HEI	羅皓希			
374	CHIU SUNG NGAI, ADRIAN	趙崇毅			
375	CHEUNG MAN YEE	張敏兒			
376	MAK TSZ WAI	麥芷蕙			
377	CHAN DISTINCTION	陳江瑋			
378	LAU CHI KING, VINCENT	劉子敬			
379	WONG PO KIT	黃保傑			
380	TO YUEN GWUN	杜元鈞			

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Arup makes urban spaces better places to live, work and play. By adopting Smart Green Resilient as our overarching approach to future city design, we contribute to a more liveable, innovative and sustainable Hong Kong with people at the heart, maximising value creation for the community and the environment.





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