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All images courtesy of Eko Prawoto unless otherwise stated

Dear *FuturArc* Readers,

It might be mind-boggling to imagine now, but we might be cohabitating with sea creatures like sharks in the near future.

The picture in my mind is a particularly fascinating drawing of a shark-like contraption created by one of the children at Toyo Ito's school (see FuturArc Interview). At least the children in his school have already visualised that scenario when asked to design a house that floats on water—alluding to the increasingly real possibility that humans would have to live on or under water as a result of climate change, which was what spurred the world's largest prototype for a floating city to be built in South Korea (see Happenings).

What is a house? What is a living space? These same questions world-renowned architect Toyo Ito raised with his students that he shared during his conversation with us are the same key pointers that laid the foundation when building this issue.

To Ana Malia Falemaka, a youth activist from Tonga who spoke at the Asia-Pacific Housing Forum, a home is "an essential space for children to grow; our homes must first of all be safe and healthy for them to live in". That means it is not enough just to have the bare bones of a roof over one's head to call a house a home. In Asia, the question of having enough or sufficient housing is still a mammoth work-in-progress task to address—it is about closing the gap. Main Feature contributor Luis Noda, Habitat for Humanity's Vice President for Asia-Pacific, calls for greater private-public collaboration to ensure that the most vulnerable of social groups has access to this basic human right in an ethical, sustainable way.

In Vietnam, Dr Le Thi Hong Na and Nguyen Viet Hien examine in detail ways to adapt the beloved traditional street house to modern high-rise apartments without losing the core principles of spatial flexibility and environmental responsiveness that reside in the heart of the street house. Such familiarity in local culture is an important part of what makes a home in Vietnamese cities. And that significance is reflected in the variety of housing offered across different social groups represented in this edition—from leveraging modular methods and offering flexible affordable apartment options to prioritising blue-green ecosystem services in an 'eco-city' complex and a vertical haven of air, light and greenery housing three generations.

If one is comfortable in one's living environment, one might call it their habitat. It is also the namesake of one of the world's most famous residences that has redefined the high-rise apartment typology. Like the definition, Habitat '67 was designed to give greater comfort to residents by bringing more air and light into the living space. Bhawna Jaimini reviews the iconic project and the latter modifications birthed from the original idea; she also spoke to Charu Kokate, Partner at Safdie Architects, to glean insights on the back story of Habitat '67 and its recent adaptations by the firm, as well as the housing crisis amidst the current climate.

My favourite takeaway from this issue is Eko Prawoto's philosophy of living and life in general. He shared how amused he gets from city folks' curiosity about his humbly sufficient way of life: "I am sometimes asked, 'If you live in a village, are there snakes? Are there mosquitoes?' Sure, there are. There are also termites, all kinds of critters—and so what? This is their home—I'm simply a boarder; I live alongside them."

In his own way, he may have found a solution to most of modern world's problems today of insufficiency—if we learn to live within our means with decency and respect, without encroaching on others and Nature due to greed or selfishness, we could be well on our way to enabling more to have access to the basic human right of housing.

Photo courtesy of k59 atelier

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Homes, not Houses

by **Luis Noda**

Photo courtesy of Habitat for Humanity Cambodia

With the gap exacerbated by COVID-19, no single organisation, or even government, can tackle the housing deficit problem alone.

Photo courtesy of Habitat for Humanity International

2

The world gained a new word—COVID-19—in 2020 and lost precious lives over the two-year pandemic. When Omicron was declared a variant of concern in late November 2021, the media had referred to it as the dress rehearsal for the next big pandemic or the sucker punch to the world. Pre-pandemic developing Asia[1] had seen a steady reduction in poverty rates. In 2017, just two years from the launch of the Sustainable Development Goals (SDGs), the number of people living in extreme poverty, or on less than USD1.90 a day, had fallen to 203 million. As of 2020, however, the COVID-19 pandemic was estimated to have pushed up to 80 million more people in developing Asia into extreme poverty (ADB, 2021)[2].

We have not even talked about the effects of urbanisation and the overlapping natural disasters and extreme weather events due to climate change. Considering that housing is a driver and catalyst of 13 out of 17 SDGs, we cannot see the need for adequate shelter in isolation or of secondary importance to factors that affect people's safety, well-being and dignity.

Housing is a basic human right that is included in many national constitutions in Asia and the Pacific. Yet, this region is also home to 70 per cent of the 1 billion people who live in informal settlements worldwide.

We know the people hit hardest by disasters are often those who live in poor-quality housing on marginal land. During the past several months, they have faced a record number of climate-related disasters. According to the Red Cross[3], tens of millions of people who were already badly affected by the pandemic would be worse off.

In 2022, we do not know whether the pandemic-induced rollercoaster ride of the past two years will end any time soon. But people who have a stake in a sustainable future are not keeping still. Ana Malia Falemaka, an 18-year-old activist from Tonga, admitted that while her government does not give a lot of attention to the housing situation, the issue still exists. Annual cyclones have never failed to prove how unsafe and weak their homes are in withstanding these storms. People in Tonga build with whatever they could find or afford, she said. "As long as there is a roof over our heads to keep out the rain, all is good." But she feels differently. "For me, home is an essential space for children to grow; our homes must first of all be safe and healthy for them to live in."

While some people may be content to let construction workers or their fathers take charge of housing, she thinks the youth must participate in the process. "It is our future that we are talking about." She was among the speakers at the Youth Congress, a side event of the eighth Asia-Pacific Housing Forum[4] from December 7–9, 2021 (see this issue's Happenings section for more on the Forum), co-organised by Habitat for Humanity and the European Union-funded SWITCH-Asia SCP Facility.

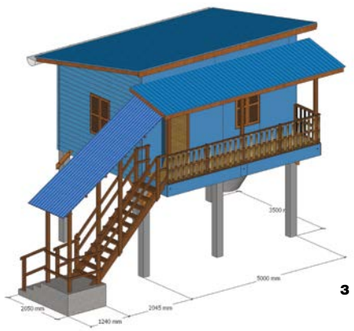

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Image courtesy of Habitat for Humanity Cambodia/Koes Chea; Vann Vivorth

1 A Habitat homeowner tending to a home vegetable garden in Cambodia **2** Ana Malia Falemaka speaking at the 2019 Asia-Pacific Housing Forum **3, 5 to 7** Artist impressions of Cambodian climate-resilient housing **4** Children riding a bicycle in front of their Habitat home in Cambodia

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Images courtesy of Habitat for Humanity Cambodia/ Koes Chea; Vann Vivorth

The FuturArc Interview

Image by Ito Juku

Image by Kai Nakamura

Image by Manami Takahashi

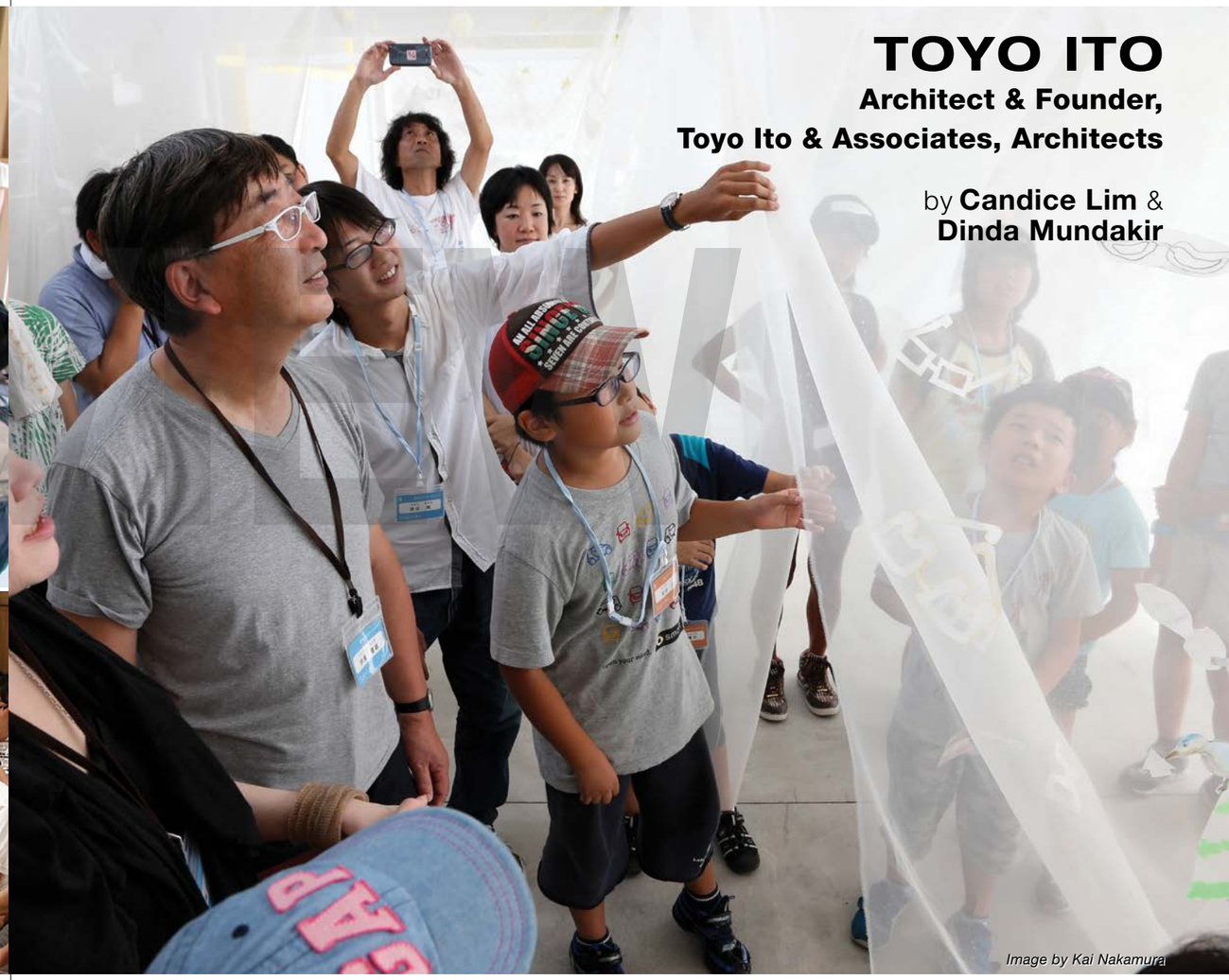

Image by Kai Nakamura

TOYO ITO

Architect & Founder,
Toyo Ito & Associates, Architects

by **Candice Lim** &
Dinda Mundakir

Toyo Ito with Julia Li, interpreter, during the Zoom interview

For someone as highly acclaimed and awarded as **Toyo Ito**—who is the recipient of The Royal Gold Medal from The Royal Institute of British Architects; The 22nd Praemium Imperiale in Honor of Prince Takamatsu; The Pritzker Architecture Prize; The UIA Gold Medal, to name a few—one would think he might be hurried in his replies during interviews. Nothing could be farther from the truth. What we found on the other side of the screen was a deeply thoughtful man whose lifetime of achievements has been mainly about the betterment of society and the future. His contributions towards educating children and creating public architecture for the masses show that he cares about giving back to the community, instilling hope and maintaining that sense of awe and creative spark in the next generation that they may coexist harmoniously with Nature. Ito advocates designing for people without tearing apart Nature; it is about going with the flow and shape of materials to express strength without force; and creating spaces beyond limited boundaries—for the future is fluid, not fixed.

BEYOND MODERNISM

CL: Thanks for joining us and for taking the time to do this interview. My first question is about new architecture ideas: what do you think is the most important emerging idea shaping architecture at the moment?

TY: ひとつは地球環境の問題があります。COPの会議などでも話題になっているように、CO2の排出をいかに減らしていくかということ。また、近代主義を越えた先にどのような建築がありうるのかという問題。その二つが大きなテーマだと思います。

JL: To him, there are mainly two things that are really driving architecture. Number one is the natural environment, which is facing a lot of danger currently, especially with the global warming situation and also the CO_2 emissions. He thinks it's something that architecture cannot neglect anymore. And number two is how we could go beyond Modernism, because he thinks that there must be something bigger than Modernism or architecture that is driven by the global economy.

DM: It's very interesting that you think that we need to move beyond Modernism, because I think that the world right now is in a very postmodern situation where so many developments are happening at a rapid pace. We're moving towards a 'metaverse', and I do think it will become the reality for the next generation. Can you think of any examples that have been moving towards that direction right now? Or what interests you in that direction?

TY: たしかに日本でも、再開発などたいへん早いスピードで進められています。しかしそれは自分にはあまり関係のないことです。私にとっては、近代主義や近代思想の建築が自然と切り離されている点の方が問題と捉えています。どのようにして、もう一度自然と親しい関係にある建築をつくることができるかということに自分の建築家としてのテーマは集約されていると思っています。

JL: Actually, it is the same in Japan—there are a lot of developments that are going on rapidly. But to him, it doesn't matter; he's not very interested in any of these large developments. The main point of interest to him is going beyond Modernism, because it tends to create environments that are cut off from Nature. And he thinks that's a lost opportunity. He wants to think about architecture that enables us to grow our relationship with Nature, something that reconnects us with Nature.

CL: Yes, at FuturArc, that's what we aim to do as well. Out of those whom Mr Toyo Ito has mentored so far, has anyone or any idea surprised him?

TY: 最近の公共建築のコンペティションでは、住民など利用する側の人たちと共にワークショップを行いながらどのように建築を実現していくかが問われています。そういった意味では、伊東事務所で働いていた平田晃久さんという建築家の、住民と一緒に建築をつくっていくという方法論は興味があります。

JL: He is talking about recent competitions in Japan where one of the important aspects is how to develop designs with the users and people who will be using the building. So, one of these architects is Akihisa Hirata who used to work for our company. He has his own firm now, and he tries hard to develop this methodology of design, together with the local citizens and users. And this surprised Toyo Ito; he is very interested in what [Hirata] has to offer in the years to come.

1 *Image by Katsuhiro Aoki*

2 *Image by Daici Ano (note: This image was photographed in 2011)*

3 *Image by Kai Nakamura (note: This image was photographed in 2011)*

1 Exhibition on Creating Public Architecture as a Home-for-All: Steel Hut, Toyo Ito Museum of Architecture in Imabari **2** Steel Hut, Toyo Ito Museum of Architecture **3** Silver Hut + Steel Hut, Toyo Ito Museum of Architecture

ADAPTING VIETNAM'S URBAN STREET HOUSE TO HIGH-RISE APARTMENTS: LEVERAGING SPATIAL FLEXIBILITY & ENVIRONMENTAL RESPONSIVENESS

by **Dr Le Thi Hong Na** & **Nguyen Viet Hien**

Photo courtesy of Quang Tran; Block Architects 1

2

Photos courtesy of Tuan-Nghia Nguyen 3

The street house (SH), which emerged in the 17th century, is an individual urban housing type that has evolved in response to Vietnam's unique cultural and environmental conditions. In this type of house, residential and commercial functions are integrated in a flexible and expandable manner, creating a variety of compositional possibilities in spatial layouts. As one of the most adaptive and popular urban dwellings, the SH has helped define daily domestic activities on the micro level and identities of urban areas on the macro level. Nevertheless, such valuable aspects have received less attention in many recent urban developments in Vietnam. Here, we seek to identify and analyse the ingenuity of the SH, focusing particularly on its spatial flexibility and environmental responsiveness, and then apply our analytical investigations to the design of high-rise apartment housing in Vietnam.

THE URBAN STREET HOUSE

The SH can be defined as an attached or semi-detached house with particular dwelling patterns such as a tube-form layout, a tube-form arcade and a narrow frontal façade that allows direct access from a street or an alley. The word street indicates a main thoroughfare in a busy commercial area (Na, 2011).

The physical characteristics of the SH may vary slightly, depending on regions and types of household inhabiting the dwelling. However, most SHs share physical similarities: the height is usually five to six storeys, and the frontal width is much narrower than the depth due to the shapes of the typical plots of urban blocks in Vietnamese cities.

One of the primary features of the SH is the mixture of residential and commercial spaces in a single structure. In a sense, the SH has developed to meet increasing commercial demands. The street-fronting façade of the SH is advantageous for commercial activities on the ground level. Rows of SHs are developed along market streets in wholesale or retail areas. As such, a fronting street, sidewalk or frontal terrace becomes a communal interface where a private domain is juxtaposed with a public realm in the street.

Other significant aspects are found in its flexibility and adaptability, particularly in terms of spatial composition and environmental adaptation—residential and business functions can be arranged in a variety of different layouts. Rooms can be expanded and adjusted to accommodate the needs of the household. In addition, the intermediate areas between indoor and outdoor spaces can serve as buffer zones, protecting inner rooms from direct sunlight and high precipitation. In fact, such in-between areas provide a moderate microclimatic condition, mediating between the internal spaces and the surroundings.

In recent years, the urban population boom has made land shortage increasingly serious in Vietnam. Therefore, tall buildings have replaced existing SHs. However, many new high-rise apartments have been designed differently from the familiar spaces inherent in traditional SHs—the former lacking a sense of cultural, social and environmental concern for cities. The research to generate new apartment design solutions is thus a necessary task today.

A small number of researchers and scholars have discussed how the SH features can be applied to Vietnamese high-rise buildings. Among them, Phuong (2010) studied the environmental responsiveness of vernacular architecture and proposed a guideline for sustainable housing design in Vietnam. However, his research was limited in that the guideline was not carried forward to suggest a new design model. Na, Park and Cho (2013) have proposed to apply lessons from SHs to the Vietnamese high-rise apartment. This article continues to develop those research results to discuss spatial flexibility and environmental responsiveness of SHs and their applicability in practice.

Representing the quintessential Vietnamese street house adapted to reflect the owners' personal style as well as the local climate and way of life: 1 Vegan House, Block Architects 2 & 3 Maison T, Nghia-Architect

HONG HA ECO CITY: A COMPACT ECO-NEIGHBOURHOOD

Some 10 years ago, the planning and construction of an ambitious urban housing project began. Situated on 16.7 hectares of land in the south-east region of Hanoi that was adjacent to a major intercity highway, the site was originally intended to be a run-of-the-mill 'new city': an array of low-rise, landed housing, clustered alongside supporting suburban amenities. However, a breakthrough solution was chosen instead when the architects proposed a self-contained and densified neighbourhood, which was based on Clarence Perry's ideas on town planning alongside the concept of the Garden City. Intending to preserve an organic linkage between housing, utility and Nature, it was decided that an 'eco city' would be built here.

Today, as the development is underway, the neighbourhood has been compacted into mid- and high-rise residences, complete with utility buildings while also providing walkable landscaped expanses—setting it apart from other social housing in Hanoi.

SPATIAL ORGANISATION OF THE NEIGHBOURHOOD

Utilities for the neighbourhood such as shopping centres, schools and other public services are placed on the south-east edges of the site, limiting the volume of vehicular traffic to avoid the central area. While motor vehicles are designed to mostly circle the perimeter, pedestrian access is given priority from the outside to the inside of the complex. This continuous connection is meant to provide convenient and safe mobility for all ages.

Clusters of the residential towers—ranging from 10 to 34 storeys high—populate the north, south and south-east areas. Setting them apart from the common residential block, the towers in Hong Ha Eco City have a variety of floor plan configurations. For example, towers CT-15 and CT-16 have a hexagonal-shaped core that adjoins three 'wings' of double-loaded residential units. This allows for a wider line of sight for each unit that is unobstructed by neighbouring towers.

Photos by Duong Nguyen unless otherwise stated 1

2 *Image courtesy of Sunjin Vietnam Joint Venture Company*

3 *Image courtesy of Sunjin Vietnam Joint Venture Company*

4 *Image courtesy of Sunjin Vietnam Joint Venture Company*

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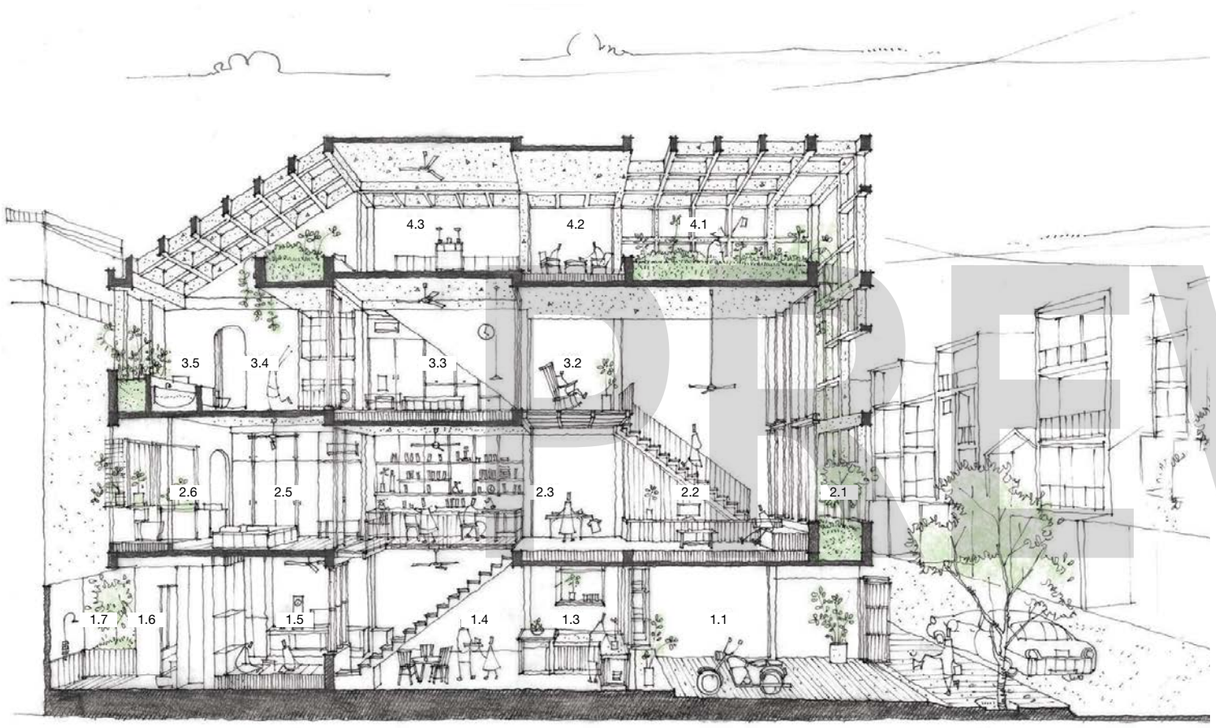
1 Unlike usual social housing, this development retains a large portion of the land for Green open spaces **2 & 3** A variety of gardens and open fields **4** Walkable gardens are at the heart of the complex **5** The artificial stream collects storm water and recycled domestic waste water to provide ecosystem services and enhance the natural habitat **6** Verdant landscaping at the outer pedestrian path

MEETING MULTI-GENERATION NEEDS IN THE ROW HOUSE TYPOLOGY: TAN PHU HOUSE



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1.1 Garage
1.2 Entrance
1.3 Kitchen space
1.4 Dining space
1.5 Grandmother's bedroom
1.6 Grandmother's living space
1.7 Back garden

2.1 Front garden
2.2 Living space
2.3 Studying space
2.4 Void
2.5 Children's bedroom
2.6 Toilet

3.1 Void
3.2 Veranda
3.3 Parents' bedroom
3.4 Laundry space
3.5 Toilet

4.1 Vegetable garden
4.2 Veranda
4.3 Worship space
4.4 Back garden
4.5 Toilet
4.6 Void

The row house—an ever-present characteristic of Asian city settlements—is one of the most economical structures that could populate an area. They are made out of several buildings of similar appearance; built upon a uniform grid; arrayed to share common walls; and with spaces that are longer than they are wide to maximise access towards street frontage.

These narrow buildings are commonly used as shophouses and home offices, as the ground level serves as an interface for public activity while the upper levels retain a degree of separation: often, only the façade interacts with the outside world. But in Tan Phu House, the architects have varied the spatial arrangement to free up the narrow space—making this a lively home fit for a tight-knit family of three generations.

Situated within a context of a neighbourhood next to an industrial zone, the architects created a model of continuous space that could incorporate nature inside the home, improving the residents' quality of life.

SHIFTING VOIDS

Vertical circulation is an important design consideration for tight buildings, because its placement would immediately determine the flow of space. To decide how the row house would be vertically punctured by voids, the architects began by observing the existing conditions of the site: the sun path and existing trees.

Considering the southeast orientation of the façade, they placed voids at both ends of the building. A gap behind the façade is suffused with greenery, which serves to control the intensity of light and filter dust from the street, while the rear area is designed with hanging gardens on balconies. These voids stretch across all four levels, ensuring that each floor receives morning sunlight and an uninterrupted flow of air. According to the architects, "The

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1 Section showing the interior space **2** Neighbourhood context

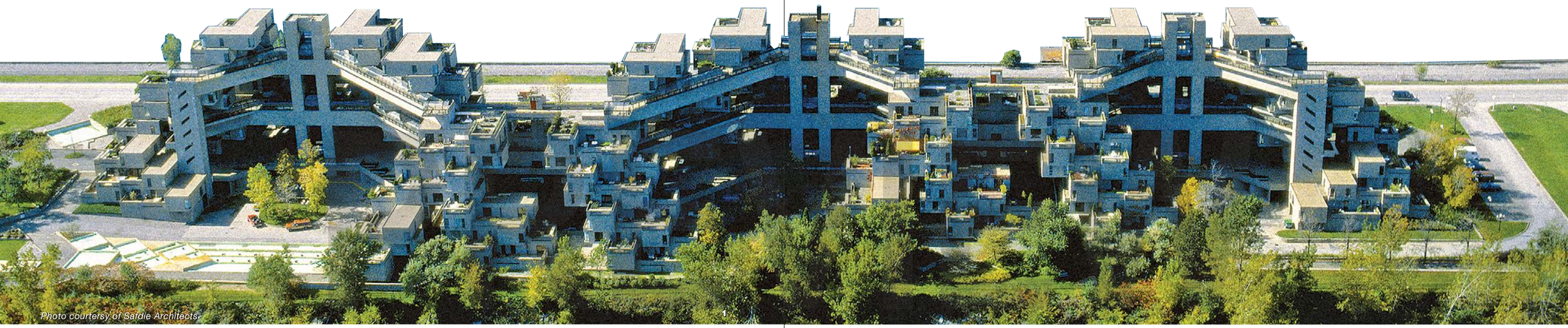

Photo courtersy of Safdie Architects

Habitat ’67: Critique on a Classic & Its Modern Interpretations

by **Bhawna Jaimini**

Habitat ’67 is perhaps one of the most recognised and iconic modern housing complexes around the world. The Israel-born Canadian architect Moshe Safdie first developed the concept of Habitat ’67 for his thesis while studying in McGill University in 1961 and submitted the project to Montreal Expo 67 two years later, while he was still working in the office of architect Louis I Kahn. Safdie got the inspiration to design Habitat ’67 as a response to the grim reality of apartment complexes and unsustainable urban sprawl that defined much of the 1960s in North America. Housing architecture in those days was mostly either tall brutalist buildings with apartments stacked on each other without common spillages or suburban row housing with front and backyards but without the vibrancy of streets to look over. With Habitat ’67, Safdie did more than just combine the two, resulting in a unique concept in urban living that will inspire generations to come. The initial master plan of Habitat ’67 was much bigger in scale—over 1,000 residences along with common amenities like a school and shop—than the built 158 houses in 12-storey interconnected structures.


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BAAN HOM DIN: LIGHTLY TOUCHING THE GROUND AND TUCKED AWAY


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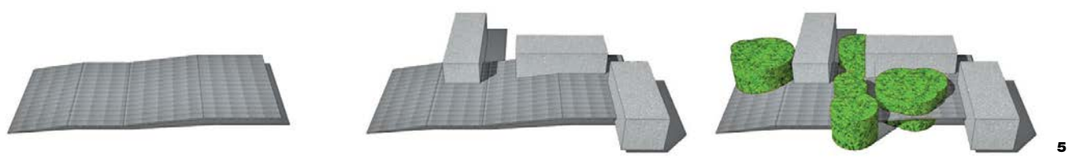
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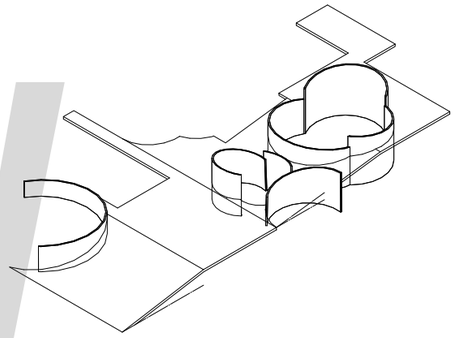
Blink and you might miss it, although that was the intention of the owners for this new design-and-build house.

Located at the edge of a small village, more than 350 kilometres away from Bangkok, this house is unlike any other in its surroundings—the wide, sloping pedestrian ramp defines the entrance to the property, alongside bamboo fencing that curves around the perimeter of tree canopies. Despite the size of the ramp, the house does not 'shout' its existence—it instead shrouds its cluster of rectangular masses behind trees that line the main road.

This abode belongs to a couple who are doctors. They have been staying at a doctors' residence downtown, but had wanted to build a private house to welcome a new member of their family. As such, the house needs to have easy access within the home and privacy within the rural setting. The architects addressed these requests by organising the main idea around elevating the house above ground and connecting it to the people-friendly ramp.

LIFTED AND CUT-OUT SPACES

The entire residential unit is lifted onto a stilted structure to avoid flooding from the public canal on the south side, especially during the rainy season, and to prevent invading pests. This elevated level helps to enhance the lines of sight to the panorama of mountains and rice fields, bringing the residents closer to Nature. Four enclosed masses that hold the bedrooms and living spaces are arranged around an open-air rectangular terrace, which serves as the primary circulation area and a fluid space for interaction between the residents. This terrace has been 'subtracted' from the ramp-platform with circular cut-outs to interact with the courtyard below, where tree tops peek through at the upper level. Bathroom spaces are placed adjacent to such openings to facilitate natural ventilation.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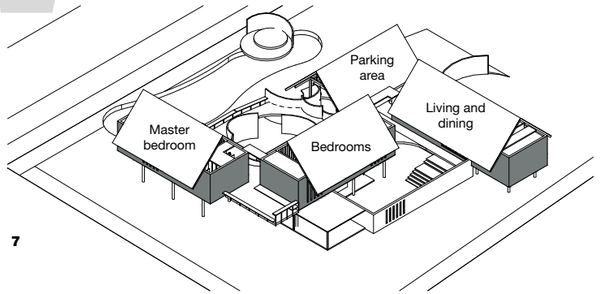
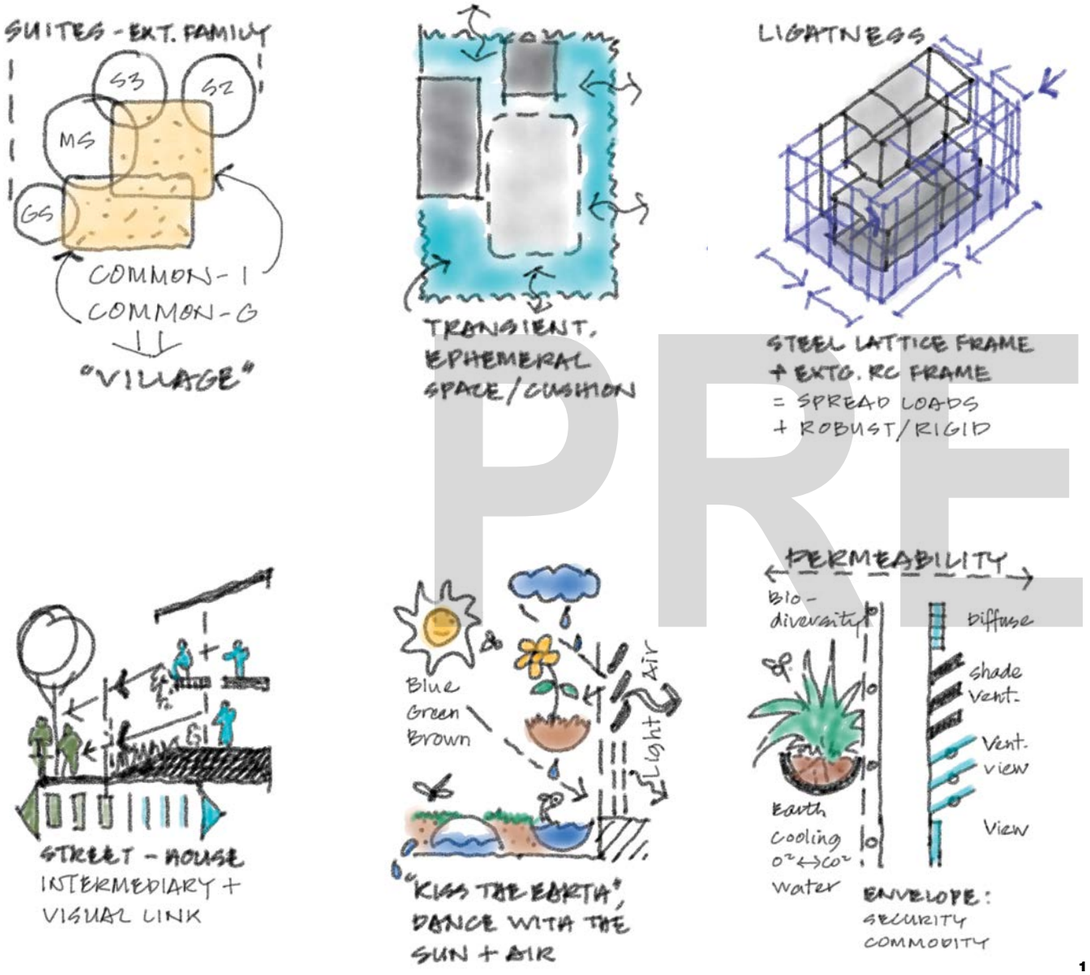


7

1 & 2 This house consists of a cluster of separate masses for different zones, avoiding a bulky appearance while enabling the occupants to enjoy outdoors living in the countryside **3** Google map indicating the site context (in red) at the edge of a village **4** Aerial view with surroundings **5 & 6** Conceptual diagrams illustrating the ingenuity of how the entrance ramp continues to become the elevated 'ground plane' or platform that 'intersects' with the functional masses of the house and greenery with cut-outs **7** Arrangement of functions



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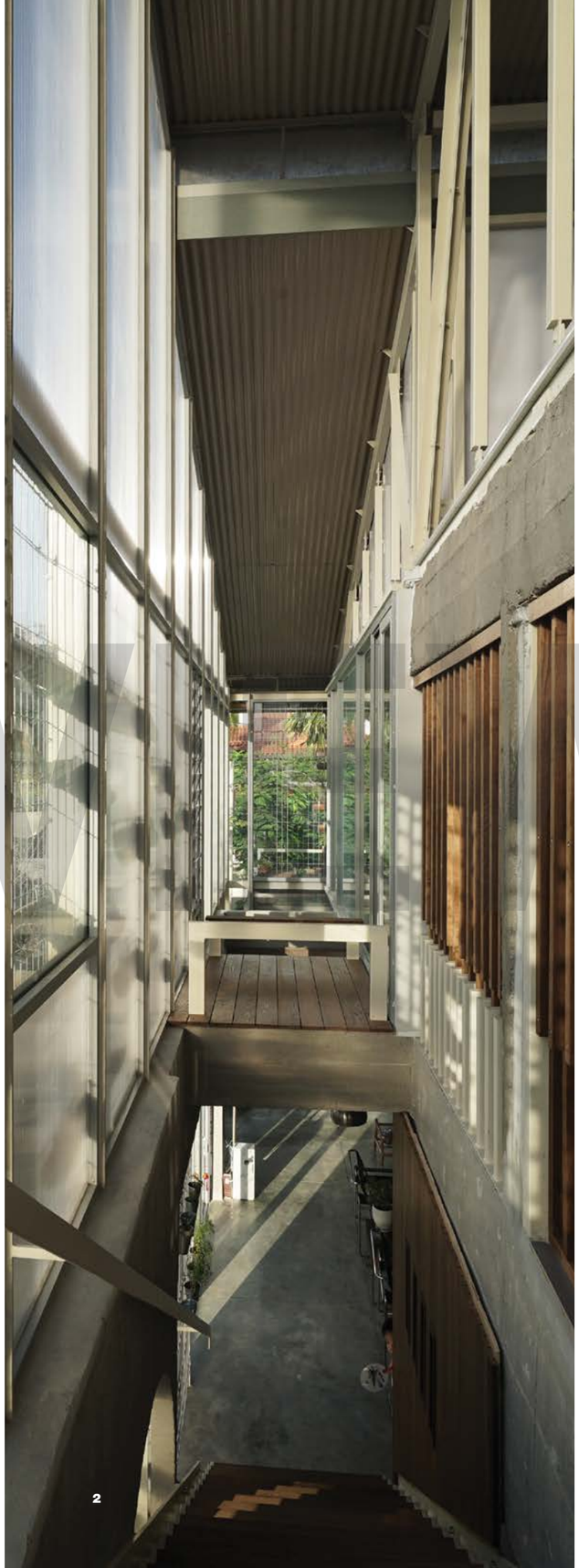

2

PERMEABILITY HOUSED

"I'm the architect/owner-builder and part-time gardener and maintenance fella of the house," Tang Hsiao Seak of Tangu Architecture revealed, when asked if the architects are also the inhabitants or residents of the house.

This question came about from the observation that the house's intriguing planting façade/system has to originate from someone who has taken great care not only to create it, but also to sustain it in the long term.

Permeability Housed—the name itself succinctly represents the main idea of sustainability behind the residence—is not only a home, but is also an ongoing test bed of concepts that the architects have embarked on over the years (hence, renovations). As such, this progressive idea of a residence is an 'evolving' piece of architectural canvas that is continuously being developed, experimented and explored upon for design innovation; research and development; and trial of ideas and principles by the practice, based on the dynamics of climate, views and plant species in different orientations, with respect to the spatial functions within.

Tang also shared that "[the house] has also taken the idea of the vertical green wall a step further by integrating it with the structure and building envelope. There's a drip irrigation system that is pump-fed and runs on a timer, coupled with the rainwater harvesting system roof tanks. By design, the planters are stacked to allow water to cascade, with the excess water being captured by the perimeter drain that feeds into the subsoil watering-planting system in the ground, the balance of which overflows to the retention/fish ponds—all in a recycled loop. In this arrangement, the drip nozzles are made efficacious by covering a large vertical area—one each for the vertically stacked 1.2-metre bay."

1 Diagrams showing the main ideas applied in the house **2 & 3** The idea of permeability is expressed by welcoming light, air and biodiversity into the spaces

3

PUBLIC AND PRIVATE HOUSING IN MALAYSIA: A REVIEW FROM THE SUSTAINABILITY PERSPECTIVE

by **Assoc Prof Dr Zalina Shari**

Malaysia's population has increased from 6.3 million during the country's year of independence in 1957 to 32 million today. Around 75 per cent of the population now live in the major urban areas, making Malaysia one of the most urbanised countries of East Asia. Unsurprisingly, public housing provision and housing affordability, especially in major cities such as Kuala Lumpur, Selangor and Penang, continue to be hot-button issues in the country.

This essay attempts to address the following questions:

- How did public housing fare in the country? Is it sustainable?
- Can terraced housing, being the most common residential form in Malaysia but often criticised for being unliveable, be transformed into Green/biophilic architectural housing for a more optimistic outlook for this housing stock?
- What is the future of housing in urban areas such as Kuala Lumpur city centre, especially for the younger generation?

PUBLIC HOUSING PROVISION: HOW DID IT FARE?

The evolution of public housing provision in Malaysia since 1971 can be reviewed in four phases: Housing the Poor (1971–1985); Market Reform (1986–1997); Slums Clearance (1998–2011); and State Affordable Housing (2012 to date).

Housing the Poor (1971–1985)

The provision of low-cost housing was the government's priority, especially in urban areas, where squatter settlements were prevalent during the early years due to large migration from rural to urban areas. In 1981, the government introduced a public housing scheme called Public Low-Cost Housing Program (PLCHP). It also required a 30 per cent quota provision of low-cost housing in every residential development undertaken by private developers and low-cost house selling price control of RM25,000 per unit (later increased to RM42,000 in 1998).

Despite various efforts, the government still failed to address the housing shortage, which allowed squatters to continue to exist well into the 1990s. Due to excessive government control and lack of funding, market involvement in low-cost housing provision was still relatively insignificant during the 1980s. Instead, the market focused mainly on medium- and high-cost housing, which was relatively free from excessive government control.

Market Reform (1986–1997)

The state began to rethink its intervention policy and embarked on economic liberalisation. The business community called for a less regulated market and reduced state intervention in the economy. During the early 1990s, the private sector began to take a more significant role in housing provision, including for low-income people.

1 Although mostly omitted from low-cost vertical public housing, when provided, balconies offer open-air space commonly used by residents to dry laundry **2** An example of the proliferation of terraced housing and its various permutations

2 *Photo by Hans Lim*

1 *icosha/Shutterstock.com*


Eko Prawoto

IN CONVERSATION WITH **EKO PRAWOTO**

by **Dinda Mundakir**

LIVING MORE AUTHENTICALLY WITH NATURE

For **Eko Prawoto**, understanding Nature is of utmost importance, and the key premise of sustainability is in humbly practising it primarily in everyday life. He has taught at the Faculty of Architecture and Design at Duta Wacana Christian University since 1985, and established Eko Prawoto Architecture Workshop where he has been Chief Architect since 2000. He gained international acknowledgement for projects and installations that utilised natural materials at the Venice Biennale; Arte all'arte; Gwangju Biennale; Echigo Tsumari Art Triennale; Common Ground Australia; Regionale XII in Austria; Singapore Biennale; Holbaek Denmark; Sonsbeek; and Europalia-Indonesia in Belgium, among others. Seven years ago, Eko moved to the village in order to study and articulate a new rural 'architectural language', something he feels would hold our key to survival in the future. I chatted with Eko about his projects and philosophies, as well as current issues that are rooted in our distance from Nature, and how to live in a more authentic way by minimising that gap.

A CONTEXTUAL REBUILDING OF VILLAGE HOMES

What happens after Nature shifts and stirs? This is a question that people living in disaster-prone areas often deal with in an urgent, life-or-death manner. Some disasters linger in the collective memory due to their unforeseen magnitude, such as in 2006 when an earthquake destroyed the entire region of Yogyakarta, Indonesia. Within a span of minutes, over 140,000 structures were heavily impacted, leaving many residents homeless with little to no recovery plan. The matter of rehousing quickly gained national attention—and for architect Eko Prawoto, it began a personal journey of involvement out of his deep care for fellow villagers.

"I wanted to visit my friends, the builders who used to work with me, in their village on the second day following the earthquake," Eko recollected. Located 10 kilometres away from the epicentre, Ngibikan Village saw many of its timber-and-plaster structures flattened against the ground. However, Eko noticed that a wooden truss system he had devised for several buildings around the village remained standing. "I discussed with Pak Maryono as the village leader, 'can we use the leftover timber to rebuild?' So, we tried to make a prototype of the truss."

The design that Eko proposed was based on a traditional structure familiar to the villagers, called the *limasan*—characterised by tall beams, a peaked roof and a tripartite division of space that could


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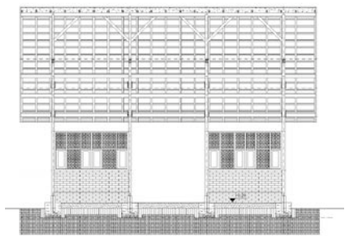
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1 & 2 Diagrams showing Eko's prototype of the wooden truss system used in Ngibikan Village after the 2006 earthquake; left to right: the modified *limasan* structure and sections **3 to 5** The reconstructed homes post-earthquake in Ngibikan Village


3


4


5

All images courtesy of Eko Prawoto unless otherwise stated

MILESTONES

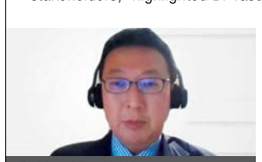
Asia

Mainstreaming Green throughout the housing value chain

Housing, households and lifestyles are central to the transition to sustainability, as these matters account for at least half of our carbon footprint. The Green agenda on consumption and production has moved forward from 'cleaning up' the most environmentally damaging materials to preventing pollution towards a life cycle perspective on the sustainable use of materials and products. This shift is needed to herald the fundamental changes that must be done to achieve decarbonisation.

The 8th Asia-Pacific Housing Forum (APHF) was held to strengthen international commitments on housing as informed by climate change and SDGs. It was organised by Habitat for Humanity, in partnership with the EU SWITCH-Asia SCP (Sustainable Consumption and Production) Facility, and hosted in Bangkok, Thailand with a virtual global audience from 7–9 December 2021. Among the objectives of the forum discussed was to build collaboration between organisations with the capacity to scale up the low-cost affordable housing sector in Asia-Pacific.

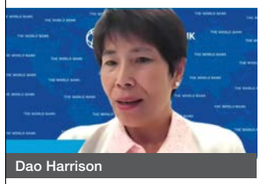
"Since 2015, there is a mainstreaming of carbon goals through efforts such as the Paris Agreement … Policy design in our era needs to meet long-term end goals and facilitate creative programmes among stakeholders," highlighted Dr Yasuhiko Hotta, Vice President of the Asia Pacific Roundtable of Sustainable Consumption and Production (APRCP). There is a need for social experimentation and seeking successful models from such experiments, with policy intervention that can further promote the best practices on a larger scope.

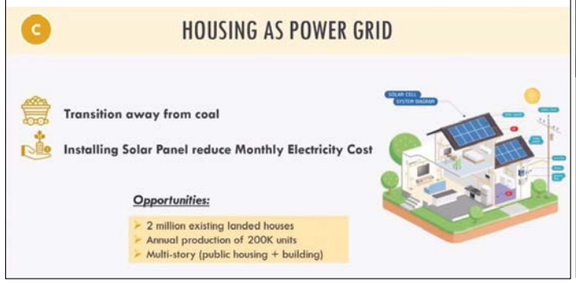

Dr Yasuhiko Hotta

Financing affordable housing in cities

Dao Harrison, Senior Housing Specialist at the World Bank, noted: "We need to think about many different solutions for many different stakeholders along the entire value chain." In the presentation that discussed the case study of Indonesia's 1-million housing programme, Harrison detailed three aspects that are in place:

- Credit-linked subsidy at 5 per cent interest rate loan, which aims to tackle the backlog of home ownership at 220,000 units per year;
- Grant for upgrade, considering a home upgrading backlog of 160,000 units per year for structures that have passed their service life period;
- Public rental housing, with a backlog of 11,000 units per year, which are 100 per cent funded by the government of Indonesia.


Dao Harrison



While these programmes deliver the volume, there is a lack in the qualitative aspect—namely, how the project is actually implemented and sustained for the people. There have been many cases where government-provided affordable housing are resold or rented at a higher value towards non-targeted occupants, signalling that the provision of housing alone is not considered adequate. Thus, housing programmes in cities need a specific vision where the impacts are accounted for beforehand: the vision needs to capture potential investment; be efficient with public spending; increase liveability and improve productivity by reducing the congested mobility networks. This is achieved by strategies of low-income neighbourhood densification, mixed-use and mixed-income neighbourhoods through public-private partnerships, as well as land value capture to provide serviced land with adequate facilities such as drainage, transportation connectivity, availability of water and energy, which are then collaborated with the private sector for further development.

Resiliency against risk

Many actors across the real estate ecosystem need to be engaged in the effort to realise housing for all: investment and advisory programmes for banks and for the building sector; Green indexes through scalable and voluntary rating systems; and working alongside governments to establish public sector codes and incentives through policy and regulation.

According to Angelo Tan, Country Lead for the Philippines's EDGE and Building Resiliency Index (BRI) at the International Finance Corporation (IFC), there are various drivers of feasibility for Green affordable housing: Access to international Green finance flows for better financing terms; minimised incremental cost through early planning; faster sales and market differentiation; savings on utility costs for owners and renters; lowered default rates and superior collateral value; and government incentives, both financial and non-financial.


Angelo Tan

In the Philippines, one of the problems in implementing housing was the risk of disaster, since the country ranks among the world's highest risk of natural and manmade disasters. By the end of 2020, the IFC had helped launch a Building Resilience Index (BRI), with around 9,200 units of affordable housing—both new and retrofitted—committed to achieve it. The BRI is set to identify risks based on project location and across four hazard categories: wind, water, fire and geo-seismic, as well as its physical integrity and operational continuity. This will be followed up with a risk management strategy that identifies mitigation measures and quantifies the cost of such measures. The index is currently prepared for global roll-out in order to push for more sustainable standards in affordable housing.

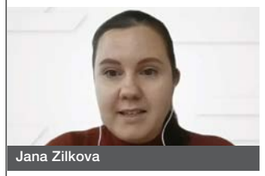
Strengthening actors in construction and demolition

It is easy to grasp the construction process as an impactful target for Green efforts in housing provision, but the other side of the coin often escapes attention. Demolition is usually seen as an opposite to construction to produce a 'clean slate' for new developments; however, when considering the amount of energy needed and the waste that results from tearing down a building, the damage on the environment is severe.

A case study in the rapidly developing context of Mongolia states how more than 80 per cent of all construction and demolition waste (CDW) had been dumped illegally outside of designated landfills. This amount represents up to a quarter of overall solid waste, making it one of the largest waste streams in the country. Jana Zilkova, Head of Mission of the NGO Caritas Czech Republic, shared about the project called Recycling Building Materials between 2016-2021 to improve waste management, beginning from the housing sector. The objective was to contribute to poverty reduction and mitigation of climate change through supporting small-and-medium enterprises, state institutions, academia and urban residents in switching to more resource-efficient practices. They identified the following existing problems throughout the housing supply chain:

- A lack of regulations for the dumping of CDW or its sustainable management;
- Construction sector stakeholders do not yet have proper knowledge on sustainable CDW management;
- A lack of official data and studies, technical and academic capacity and human resources;
- Misconceptions among the public about reused and recycled materials;
- Existing buildings are not made with sustainability in mind—many rely on fossil fuels for heating and cooling and use old technologies.

The programme, originally planned to be applied in the capital city of Ulaanbaatar, ended up being organised in all 21 provinces of Mongolia and engaged more than 4,000 representatives for awareness-raising and training. The learnings of the activity had the potential to be scaled and replicated to other countries. Harnessing the materials on hand, the project developed a CDW-based recycled concrete aggregate, which could replace 30-50 per cent of the natural aggregate that is mined from the riverbanks. To prepare the product for commercial production and further development, its technical standards had been advocated to be approved by the authorities, an economic feasibility study had been conducted for the product to ensure its profitability for industry players, while awareness-raising and promotional activities for the public were also organised.


Jana Zilkova

To strengthen legal certainty and incentives to support sustainable consumption and production, the project also improved the Mongolian legal framework regarding CDW management by creating a procedure to handle CDW at all stages of construction, which has been approved by the Ministry of Construction and Urban Development. This groundwork was conducted with the development of a university and certification curriculum, alongside online and classroom training platforms for non-formal education to ensure its continuity to the next generation.


chinahbzyg/Shutterstock.com
The high rate of demolition in Mongolia is related to other social and environmental problems, such as urban air pollution.

The voice of youth in reshaping housing

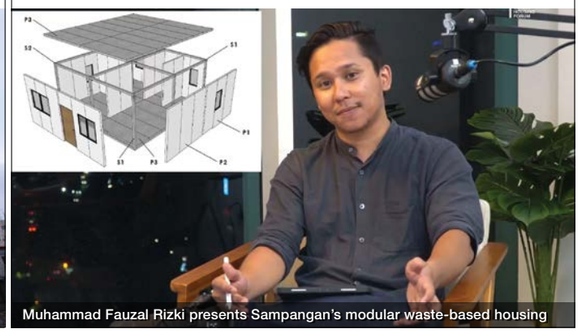
Young people disproportionately bear the effects of inadequate housing. According to the International Labour Organization, the global pandemic has resulted in higher risks of eviction and long-term inability to afford a decent place to live, disruptions in schooling and employment, and the rising occurrence of abuse and violence. Echoing the need for creative ideation to shape overarching policy in the current era, it is critical that the youth can harness their creativity and innovation to reshape inclusive housing.

The illustrated concluding statement presented by Mazidatun Maftukhan at the Youth Congress

As a side event of the forum, the Youth Congress—a platform for persons aged 15 to 30 years old—drafted a statement about building forward better for inclusive housing, based on a virtual survey held prior to and during the event. The statement was presented alongside illustrated drawings at the Closing Plenary by Mazidatun Maftukhan as part of the UN Major Group for Children and Youth. "Homelessness is more than just the lack of a roof over one's head—human-centred approaches can help us truly understand needs", reads the first statement. Some of the observations included how there is an apparent imbalance of resource distribution in terms of housing: "So many abandoned houses, yet homes in Tokyo keep getting smaller and smaller!" Stating the need to redouble commitments to the progressive realisation of the right to adequate housing, Maftukhan concluded: "We are excited about the future … we, young people, are the present. We must develop a deep sense of focus on people-centred solutions and not forget about affordable housing for all."

Innovating for impact

To reward and demonstrate the importance of strategic collaboration in the field, especially in people-public-private partnerships, APHF bestowed Innovation Awards to products and services related to affordable housing that addressed real needs in providing disaster-resilient, inclusive and sustainable solutions.


Muhammad Fauzal Rizki presents Sampangan's modular waste-based housing

Bona launches a highly durable lacquer for an ultra-matte wood experience

A new addition to the Bona Traffic family of lacquers is Bona Traffic HD Raw—an ultra-matte, highly durable and protective lacquer to create an aesthetically pleasing, 'untreated' wood experience that meets contemporary trends and floor owners' needs.

The sheen on a wooden floor can differ depending on the perspective and viewpoint. When viewed from the other side of the room, even a low-sheen floor could appear glossy when sunlight is shining on the lacquered surface. "Sheen differences on a floor have to do with the lacquer and its composition. After extensive research by Bona, we finally solved this challenge, delivering a new topcoat with a true raw wood look," said Thomas Hallberg, Director Product Management Professional EMEA/APAC, Bona AB. "The magic lies in the combination of different features that optimise the performance of the product. Bona Traffic HD Raw has an excellent natural look with great durability in terms of wear, scuff and chemical resistance. Even if the lacquer is almost invisible, it´s there, assuring long-lasting protection of the wood floor."

Like all Bona Traffic HD products, Bona Traffic HD Raw is a two-component waterborne lacquer that is classed as EC1^{PLUS}—indicating the best in low-emission materials—and GREENGUARD Gold-certified for indoor air quality. The lacquer is low-odour and offers high slip safety, making it ideal for homes with children and pets, with a look that stays consistent in larger areas as well as during the application and drying processes.

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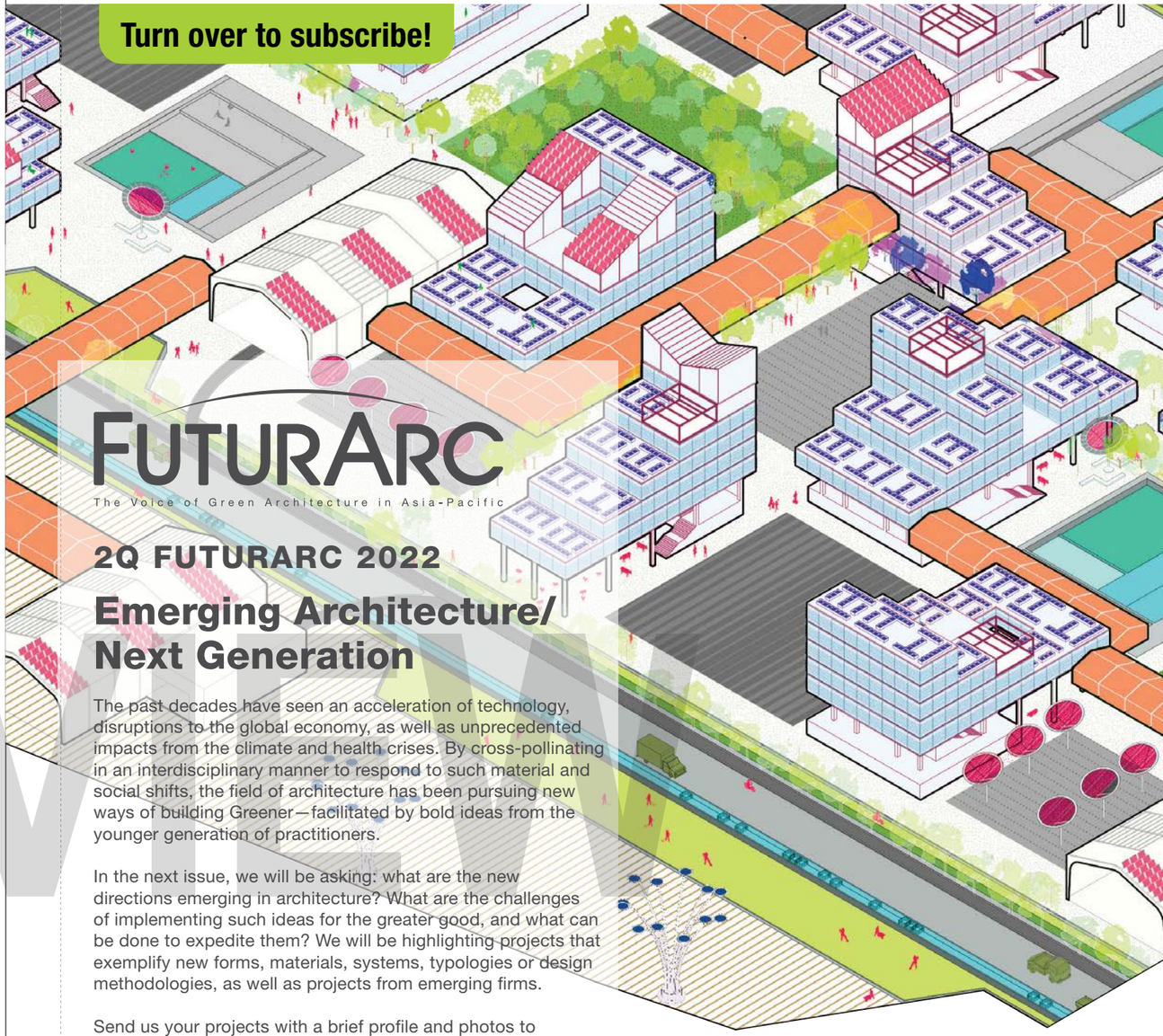

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Emerging Architecture/ Next Generation

The past decades have seen an acceleration of technology, disruptions to the global economy, as well as unprecedented impacts from the climate and health crises. By cross-pollinating in an interdisciplinary manner to respond to such material and social shifts, the field of architecture has been pursuing new ways of building Greener—facilitated by bold ideas from the younger generation of practitioners.

In the next issue, we will be asking: what are the new directions emerging in architecture? What are the challenges of implementing such ideas for the greater good, and what can be done to expedite them? We will be highlighting projects that exemplify new forms, materials, systems, typologies or design methodologies, as well as projects from emerging firms.

Send us your projects with a brief profile and photos to dmundakir@futurarc.com by April 2022.

Please note that the selection of projects is subject to editorial discretion.

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