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VERTICAL CITIES ASIA

每个人都会变老
Everyone Ages

International Design Competition& Symposium

2012"亚洲垂直城市"国际设计竞赛暨研讨会

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李灿辉 Tunney F. LEE

出生于中国广东，在波士顿唐人街长大。他获得了密歇根大学的建筑学学士学位，曾在罗马大学做富布莱特访问学者。他曾担任麻省理工学院的城市研究与规划系的系主任（现在是建筑和城市规划系的名誉教授），且参与创建了香港中文大学建筑系。

Tunney F. Lee was born in Guangdong, China and grew up in Boston's Chinatown. He has a Bachelor of Architecture from the University of Michigan and was a Fulbright Fellow at the University of Rome. He was Head of Massachusetts Institute of Technology(MIT)'s Department of Urban Studies and Planning (now Professor Emeritus of Architecture and City Planning) and the founder of the Department of Architecture at the Chinese University of Hong Kong.

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2012年亚洲"垂直城市"国际竞赛以"每个人都会变老"为主题，设计对象是韩国首尔龙山区的一个一平方公里的区域。该竞赛旨在鼓励参赛队伍提出积极的老龄化应对方案，解决应如何抓住机遇、在维持现有城市功能水平的同时保障居民的终身福祉。设计方案考虑"积极老龄化"及"居家养老"等概念，为年老及年青的一代设计适当的照护环境。
This year's competition explores the theme "Everyone Ages" and the design target place is located in one square kilometre of land in Yongshan district of Seoul. The competition explores and addresses this concern by encouraging new positive approaches to ageing society that identify opportunities for maintaining capacities and well-being over the life course. By observing concepts such as "active ageing" and "ageing in place", the solutions aim to develop appropriate built environments, for both older and younger generations; a crucial element to successful ageing within the community.

在2012年"亚洲垂直城市"大赛中，来自亚洲、欧洲及美国的参赛学生，提出全面的可持续都市规划模式，以舒缓亚洲城市老龄化的问题。其中，来自荷兰代尔夫特理工大学两支参赛队伍巧用创意解决城市化问题，在国际设计比赛中双双摘下桂冠，东京大学的B队和上海同济大学的A队则分别荣获第二和第三名。
虽然最终只有8件作品获得了奖项，但其实每一件作品都呈现出周详的设计方式，并以全面的角度考虑各种因素，同时又展现了城市建筑远景。尽管最终的设计结果和表现形式很重要，但评审委员也积极肯定了参赛队伍们在方案中所投入的心血和思考过程。

In the Vertical Cities Asia 2012, students from Asia, Europe and the US offer holistic solutions to address issues relating to sustainability and aging population in Asian cities. Two teams from Delft University of Technology win International Design Competition with innovative solutions to address urbanisation problems. The second-prize winning scheme is from the University of Tokyo, Team B and the third-prize goes to Tongji University, Team A.
Although there are only 8 works which get prizes finally, other 12 works also distinguish a thoughtful process oriented approach, a comprehensive consideration of a variety of dimensions that contribute to city building with a clear vision towards the future. Results and form really matters, but the jury wanted to highlight the attention paid to process and programmes in the proposals.

对城市背景下的老龄化问题进行的讨论倾向于鼓励使用两种调查方法。在2012年亚洲垂直城市研讨会上公开的这两种思路穿插了对垂直度和密度进行的更全面的讨论。研讨会文件分为四个宽泛的主题分类: 立体发展方向; 人口老龄化空间和建筑老龄化; 密度研究; 案例分析。这四个主题分别提供了关于亚洲和更远地区的城市发展的有价值的见解。
A discussion of ageing in the context of cities tends to encourage two lines of enquiry. Both threads surfaced at the Vertical Cities Asia Symposium 2012, interspersed with more general discussions of verticality and density. The symposium papers fall into four broad subject categories that offer valuable insights into urban development in Asia and further afield: aspects of vertical development; spaces for the ageing of people, and the ageing of buildings; the study of density; and project discussions.

北京万通立体之城投资有限公司首席执行官
郝杰斌 后记
The afterword from Roy Yao, the CEO of Beijing Vantone Citylogic Investment Corporation

VERTICAL CITIES ASIA "亚洲垂直城市" 国际设计竞赛暨研讨会

Competition Themes

Everyone Needs Fresh Air, 2011； Everyone Ages, 2012； Everyone Harvests, 2013.

Competition Objective

According to the requirements of the theme, the objective of the competition is to seek a holistic solution or a new urban paradigm for a rapidly growing Asian city which also faces the issues of sustainability and quality of life.

Competition Method

For the competition, students of architecture and related disciplines from ten universities were tasked to design one square kilometre of land for 100,000 people, taking into account factors such as density, liveability and sustainability specific to the rapid and exponential growth of urbanism in Asia.

Design Considerations

The design should consider the following issues holistically and integratedly：sustainability (environmental), quality of life (inclusiveness and community), feasibility (buildability, financial and social support), relation to context (place, awareness of conditions, climate and cultural milieu) and technical innovation (technology and techniques).

Team Participation

10 Universities from global are invited.Two proposals from each university will be selected and the University team of 1 faculty member and 2 students will be sponsored to attend the jury session and the symposium.Universities are to identify their teams as "Team A" & "Team B" in all their submissions and documents.The jury members will be invited to deliver a paper at the symposium on the theme in the context of densely urbanized Asian cities. The 2 students will be required to present their respective team designs for the competition to the international jury panel.

Jury Proceeding

The jury proceeding will be an open session, allowing other students and academics to attend as audiences. The drawing of lots will be used to determine the sequence of presentation of each university.Each university with its 2 teams will be allocated 60 minutes for presentation and jury feedback. Each team will be given a maximum of 15 minutes presentation time with 15 minutes for jury comment. Strict time keeping will be enforced.

Prizes

The top three submissions were awarded cash prizes of S$15,000, S$10,000 and S$5,000, respectively.

序言 Preface

寻找未来幸福的阶梯
Towards a Sustainable and Happy Urban Future

在新加坡，亚洲垂直城市国际设计竞赛暨研讨会已经进行到第三届。这项竞赛我们给定的最重要的议题就是城市向上发展，换句话说，这个竞赛的宗旨是为了激发人们对立体城市或者是垂直城市研究的兴趣，能够在互联网时代，激发大家发挥各种想象，面对快速城市化的挑战，深入研究一个最理想的城市发展的规模、尺度、空间密度，产业与生活合理的比例，以及可持续发展城市所需要的空气、水、交通、人口和社会管理方面的诸多议题。

之所以会想到设立和支持这样一项竞赛，主要缘起于在中国的城市化进程中遇到的诸多问题和引发的一些思考。

我在中国从事房地产20多年，深切感受到了中国城市化发展急速的脚步。在快速城市化的过程当中，创造了巨量的GDP，也使很多人住进了以前从来没有想象过的豪宅、大屋。城市化也通过交通，特别是轨道交通的联系，使空间变得非常紧凑，人口的流动也非常频繁。这当然是我们事先预见到和乐见其成的，但不容讳言，快速甚至鲁莽的城市化也给我们带来了很多困扰。

第一个困扰，就是土地资源的浪费。摊大饼的发展模式，使中国的城市化一方面土地非常紧缺，另一方面挤占大量耕地，使城市扁平化无限铺开，也使中国原有的生态环境格局遭到了巨大破坏。

第二个困扰，就是在整个的城市化发展过程当中，房地产成为一个主角，而本身城市发展的经济引擎，也就是产业被忽视，或者说没有时间，没有机会，没有心力，没有愿望能够很快的把产业做起来。城市化就变成了房地产化，房地产化就变成了依赖土地财政，而依赖土地财政便成了政府无限发展新区和"摊大饼"的一个致命冲动。

第三个困扰，就是节能环保。城市无限的蔓延，无效的交通，不必要的移动越来越多，同时汽车数量也越来越多，水和空气变得越来越糟，一些都市特有的疾病越来越严重，使人们的健康受到了极大的损伤。城市化破坏了环境，使人们的生活更加不安。其中，在建筑工地上的能耗，占到我们整个城市发展的新增碳排放的1/3。

第四个困扰，由于这样的城市无限摊大饼带来的功能紊乱，人们的居住、工作、就医、娱乐、教育都变得非常之困难，非常不方便。城市化与原来相比带来了效率，但是没有带来期望的幸福。同时，摊大饼的无限发展方式，给城市的管理带来了非常多的问题，包括我们传统的居委会、街道，还有基层政权的有效管理，都出现了扭曲和变形。凡此种种都归结为一个问题：我们究竟需要一个多大的城市，需要一个多高的城市，需要一个怎么样密度的城市，需要一个怎么样使上班和居住有效结合的城市，需要怎么样建成一个高密度可持续发展的宜居、幸福的城市。最后，怎么样在城市化过程中，让人和人之间有更多的微笑，更多心灵的自由，更多便捷、更多快乐的生活。

正是出于这样一种解决问题的冲动，我自觉有一个使命，就是把公司的业务和城市化的发展紧密结合起来，去承担建设一种可持续宜居城市的责任。

怎么样建设可持续宜居城市？我们特别关注新加坡的经验。在新加坡，由于国土非常的狭小，人口密度非常高，又需要按照一个国家的职能来有效使用这些土地，所以对经济社会发展过程中的土地的使用和空间的使用有非常科学合理的规划，在过往50多年里积累了宝贵的高密度可持续宜居城市发展的成功经验。因此，我们决定依托并借助新加坡的研究力量，和新加坡国立大学设计与环境学院一起，共同举办这样一个全球大学生（研究生）关于未来垂直城市的规划设计竞赛。这项竞赛本身由新加坡国立大学来组织，我们世界未来基金会和万通立体城市公司都给予了一些支持。新加坡国立大学充分运用其自身发展经验和各方面资源，力图使这项竞赛能具有国际最高的水准，这主要表现在

评委的选择、议题的设定以及评奖过程的公正、专业和有效。国立大学邀请了全球最富有创建性、最富有经验和最富有理想的一些专家评委，并且着眼于亚洲周边高密度城市发展的需要，先后设定了中国大陆成都的一个地块，还有韩国首尔的龙山地块，以及第三届竞赛的越南的一个地块，分别结合城市化的实践设定相应的竞赛主题。

在成都的竞赛当中，研究的是一个城市多大的尺度和密度是最合理的。到了首尔龙山地块，我们设定密度同样的情况下，怎么样解决养老宜居和就业发展的问题。第三届，在越南我们又换了一个主题，就是在密度同样的情况下，怎样通过都市农业的发展，来使垂直城市变得更加可持续，更加具有生气和活力。未来，我们仍然会坚持这样的路线，也就是根据亚洲不同城市的垂直城市的模型和高密度发展的需要，来设定不同的议题，从而使关于垂直城市的研究本身成为一项长期的可持续的创造价值的研究。

每一次的评奖我都会在现场倾听每一组竞赛选手对于他们作品的认真介绍。在这过程中我大开眼界，让我对整个世界充满了无限的欣喜，因为我看到所有最具有创造力的想象，以及一些细致的勾勒和安排。比如说，曾经有一组美国的选手，他们把垂直城市做成了像树一样的自然生长，每一个建筑体可以挂在一个垂直向上的结构体上。我也看到一组欧洲的选手，他们会把原有城市土地的肌理保存得很好，然后使一个很高密度的城市似乎看上去也并不是那么突兀，而且和环境融合得非常之好。更有想象力的，是在老城市不动的情况下，在老城市的上面，架起一个垂直城市的新城，然后再把老城市底下的人再搬到上面去。这样有效地解决了老城的拆迁和发展问题。

应当说，这样的竞赛是没有止境的，第三届也只是刚刚起步，我们第一步规划了五届，未来可能还会有十届、二十届甚至更多，我们研究的议题也不会停下来。因为只要我们的脚步不停下来，我们的研究和思考就不会停下来。我很期待更多对此议题有兴趣的研究者，包括学生，包括从业者，都能够关注和参与到这项竞赛和研究当中。我也很愿意继续支持这项研究。

令人欣喜的是，我们的这些研究并不是纸上谈兵。这些研究给我的启发很多都已经在中国本土发展立体城市的具体实践当中得到了印证和实施。目前，我们在中国，在西安、成都和温州都在发展这样一个理想的垂直城市或者是立体城市。我们也正是围绕着节约土地、产城一体、节能环保和社会和谐这几个目标，来推动中国本土的立体城市的发展。

更令人欣喜的是，不光我们作为一个企业在实践立体城市这样一个梦想，越来越多的城市的领导者以及相关专业部门的领导者，还有越来越多的中国本地的研究人员都非常支持，并且和我们一起推动这项事业的发展。

未来，我相信立体城市在中国一定会大行其道，成为中国城镇化、城市化发展的一个主流的方式。只有这样，中国城市的发展才能够对国土集约使用，对产业的主导发展，对环境生态的保护以及对社会管理的改革起到一个重要的推动作用。

人生有梦，筑梦踏实。让我们一起再加油，通过一次次的竞赛，使我们的梦想更加灿烂，也使我们的梦想在土地上生根发芽，成为引导未来幸福的一个阶梯。

冯仑 万通控股董事长

This year, the third edition of the Vertical Cities Asia (VCA) International Design Competition and Symposium will take place again in Singapore. The intention of the VCA programme is to address the issue of cities that are expanding vertically. In particular, we want to stimulate research efforts into "three-dimensional" or "vertical" cities. In this Internet Age, we hope to provoke imaginative responses to confront the challenges brought about by rapid urbanization, and to explore the size, scale, density, work-life balance of an ideal city while keeping in mind the topics relevant to sustainable development in terms of air, water, transportation, population, social management, etc.

The many pressing issues that resulted from China's rapid urbanization are a main reason why I established and support the VCA programme. Having been in the real estate business in China for over two decades, I have experienced first-hand how quickly China is urbanizing. An enormous amount of GDP has been generated, and many people now live in homes of unimaginable luxury. Transport systems in cities, especially the railways, provide greater connectivity. With increased mobility, urban space also becomes more compact. These are trends that were anticipated and are welcomed. However, there is also no denying that rapid – even reckless – urbanization has raised many complex issues we need to seriously consider.

The first issue is the waste of our land resources. The "pie pattern" of urban development in China creates, on one hand, the scarcity of urbanizable land, and on the other hand consumes large areas of arable land as cities sprawl horizontally in a way that causes great damage to the ecology and environment.

The second issue is the dominant role that the real estate sector has come to play in the whole urbanization process in China. As an economic engine, urban development has overshadowed industrial development. For many Chinese cities, it seems that there is no time, opportunity, willingness or the motivation to develop industries. Urbanization is equated to real estate development, which cities increasingly rely on for revenue. This dependence on land revenue becomes the fatal impulse that drives the government to recklessly develop new districts and expand the city horizontally.

Thirdly, we face the conundrum of conserving our energy resources. Unlimited urban sprawl, inefficient traffic systems that cause an increase in unnecessary trips have led to the rise in the number of automobiles and the worsening air and water quality. Some serious diseases that become widespread in the urban environment are endangering the health of the residents. The process of urbanization has so ruined the environment that people's lives have become more unstable. One clear statistic is that energy consumption on construction sites now accounts for a third of the newly-added carbon emissions due to urban development.

The fourth issue we face is the urban dysfunction brought about by the limitless "pie model" urban sprawl. Residents face difficulties in living, working, healthcare, entertainment and education. While urbanization has improved efficiency, it has failed to bring the expected happiness for the citizens. At the same time, the sprawling "pie model" urban development imposes many problems for the management of the city. The once -effective management undertaken by the traditional neighbourhood and community administration has been distorted.

These complex issues really boil down to these key questions: How big should our cities be? How tall and how dense should we allow our cities to become? How can city residents balance working and living? How can we build a sustainable, liveable and happy city? Last but not least, what sort of urbanization process would promote greater social harmony and freedom for the mind and soul, more convenient facilities and happier lives?

Motivated to seek a solution to these issues, I aligned the mission of my business with the urbanization process, and to take on the responsibility of building sustainable and liveable cities.

We found Singapore's experience to be particularly relevant. The country is densely populated and has very limited land. To use land efficiently, Singapore has had to plan the land use and spatial distribution for social and economical development in a careful and rational manner. Over the last fifty years, Singapore has accumulated valuable and successful experiences in developing a high density sustainable and liveable city. We decided to partner with the National University of Singapore (NUS) School of Design and Environment to launch an international design competition for university students (graduates) on the planning of vertical cities of the future. The competition is organized by NUS and supported by World Future Foundation and Beijing Vantone Citylogic Investment Corporation.

With its academic experiences and connections with global intellectuals, NUS has hosted a programme of the highest international standard. This is reflected in the professional and impartial approach to the selection of the jury member, the competition agenda and themes, and award process. Creative, experienced urban design and planning experts were invited as jury members; and to focus on the needs for high density development in Asian cities, sites in Chengdu (China), Seoul (South Korea) and Hanoi (Vietnam) were identified as the design sites for the first three editions of the competition, along with a unique design theme based on an appropriate aspect of Asian urbanization.

For the site in Chengdu, the focus of the competition was the appropriate size, density and air quality for a city. In the case of the site in Seoul, the question was the balance of elderly care, employment and local development given the same density. For the third edition of the competition, the theme is how to make the city more sustainable, lively and viable by promoting urban agriculture, again given the same density. For the remaining editions, we will follow the same approach, which is to set the design theme based on the urban models and needs of high-density development of different Asian cities. In this way, the research on vertical cities will itself be a long-term, sustainable and valuable discipline.

I enjoyed listening to the presentations of each design team. It was an eye-opening occasion because of the most creative imaginations and the detailed descriptions and planning from around world that I saw. For example, there was a tree-shaped design scheme by a team from the US in which the buildings hang from an upward-growing vertical structure. I recall a European team whose design preserves the original urban texture so well that the high-density city looks quite natural and integrates perfectly with the surrounding environment. Even more creative was the proposal to build a new vertical city on top of the old one, and then move the residents from the old one to the new one on top, thus effectively solving the relocation and development problems for the old city.

There will be more VCA competitions in future: the third edition is already underway. We planned for an initial run of five annual editions, but there could be ten or even twenty more in the future. Research on vertical cities will also continue. As long as there is urban development, there will also be reflection and research. I look forward to more researchers, as well as students and practitioners to undertake research in the topic and to participate in the competition. I would be glad to continue to support the programme.

It is gratifying to note that the research is not remained only on paper. The ideas produced by the VCA programme have inspired us to incorporate them into the development of vertical cities in China. We are currently working on developing the "ideal vertical cities" in Xi'an, Chengdu and Wenzhou. Through promoting the development of Chinese vertical cities, our goal is to conserve land, integrate industries in the city, save energy, preserve the environment, and to build harmonious society.

What is even more gratifying is that we are not the only ones seeking to realize the vision of the vertical city in China. More and more Chinese government officials and relevant authorities as well as researchers are supporting and advocating the vertical city enterprise.

I believe that in the future, vertical cities will be dominant and become the mainstream development model in Chinese urbanization. It is the only solution to achieve intensive land use, promote industry-oriented development, protect the ecology and environment and support social management reform.

In life, it is important to have dreams, and to work diligently to realize them. Let us try our best to make our vision shine brighter with each competition, and to have our dreams take root and become our pathway to the future happiness.

Dr. Feng Lun
Chairman, Vantone Holdings Co., Ltd

序言 Preface

在城市化的进程中，许多亚洲城市将选择高密度高容量垂直发展的方案，以限制城市过渡扩张、保护农业用地、优化资源配置。这些问题在人口众多、土地资源有限——在亚洲尤其普遍。香港、新加坡即是采取高密度高容量垂直发展方式的典型城市。这种模式的可贵之处在于，高密度将为城市及居民创造更加包罗万象的社区，降低碳及生态足迹；通过提倡多样性、加强连接性和鼓励创造性以激发经济活力。通过创新的设计手段，高层建筑将具备混合功能及社区功能，达到更高的能耗效率，同时降低单位面积的生态足迹指数。

当然，高密度发展必然带来技术和社会的双重挑战。为了解决交通及人口压力、能源及水资源利用、乃至污染、噪声和疾病传播等问题，必须有适当的管理机制、规划设计及研发。密度越高，挑战越严峻。

创办"亚洲垂直城市"国际设计竞赛暨研讨会的初衷，是希望为来自3大洲、10所大学的——香港中文大学、新加坡国立大学、同济大学、清华大学、东京大学、代尔夫特理工大学、苏黎士联邦理工学院、加州大学伯克利分校、密歇根大学和宾夕法尼亚大学——教师及学生提供一个平台，共同探讨城市高密度高容量垂直发展方式带来的机遇与挑战，集合国际智慧直面亚洲的高速高密度城市化，为高密度/容量的紧缩城市提供可行的可持续发展解决方案。

第一届大赛暨论坛的主题为"每个人都需要新鲜空气"，本届则通过"每个人都会变老"的主题，关注许多国家正在面临的人口老龄化问题。未来50年，整个亚洲65岁及以上的人口将有显著增加。据估计，亚洲地区该年龄段人口将增长314%——从2000年的2亿零7百万猛增至2050年的8亿5千7百万。第二届竞赛的各参赛队需要面对这股席卷亚洲的银色浪潮带来的挑战，提出解决方案。竞赛设计场地位于老龄化速度最快的国家之———首尔。

本次竞赛旨在探索老龄化问题，鼓励积极的老龄化应对方案，解决应如何抓住机遇、在维持现有城市功能水平的同时保障居民的终身福祉。解决方案应关注"积极老龄化"及"居家养老"等概念，为年老及年轻一代设计适当的高密度照护环境，这是社区能否成功应对老龄化的关键因素。

竞赛设计要求——一平方公里一个容纳10万居民，看似非常技术化，而实际上，各参赛队伍的解决方案在很大程度上被其所在地区/国家更广阔的文化背景所影响。

代尔夫特理工大学A队的"城市无限"提出一种策略，在保持城市肌理的同时，实现过去与未来的对话。设计重点着眼于建立指导城市生长的条件和规则，同时发掘并强化原有的城市环境。通过提出一系列定义明确、涵盖范围广泛的政策，"城市无限"方案致力于保留那些让城市生动有趣、令人惊喜、独特的特质，在允许城市抱有自主生命力的同时温和的主导它的生长。

同样来自代尔夫特理工大学的获胜方案"居住一生的城市"旨在确保龙山居民能在此生活一生。方案关注基本城市服务设施的便利性，因而步行距离成为定位基本生活设施的工具，如杂货店、理发店、社区中心等。并列第一的两个方案胜在包容性。

获得二等奖的东京大学方案，通过整合安全便捷的交通系统，显示了设计团队对他们的设计对象——老年——人有十分敏锐的理解。最后，同济大学的三等奖方案强化了场地，在考虑历史因素的同时注意成本控制。本书中详细呈现了获奖方案和其他众多未获奖方案，展现了解决城市人口老龄化方案的无穷可能性，而人的独立特色和社会性在这些方案中都得以存续。

除了设计竞赛方案，本书也包括了参赛院校教师及大赛评审撰写的研讨会论文。这些论文主要阐释了启发设计方案的概念或内容；所有论文的集和，成就了一个倡导多样化思路、启发活力思辨的论坛。论文中涵盖的设计方法及理念相当广泛。

本书是多年努力的成果，而努力的出发点就是坚信亚洲城市必须直面快速城市化和城市无限扩张带来的危害。我相信"亚洲垂直城市"项目对解决亚洲城市面临的困境是非常有价值的。

借此机会我想感谢慷慨捐助亚洲垂直城市项目的北京万通立体之城投资有限公司（立体之城）、世界未来基金会及基金会主席冯仑博士。我还要感谢立体之城资助本书的出版并组织竞赛成果展览。这些机构无私捐赠，使我们有机会向全世界敲响警钟直面刻不容缓的挑战。他们的持续支持，将帮助我们不断地寻找棘手难题的解决方案。

我也要感谢来自参赛院校的院长同行、学生及执导教师对大赛及研讨会的专注投入。最后，我要对新加坡国立大学设计与环境学院及其下属建筑系的学生、教职工表示由衷谢意，感谢他们为设计竞赛、研讨会、展览、出版及后勤保障等方方面面付出的辛劳。

参赛院校的设计方案展示出的知识水平和专业热情让我颇受鼓舞。优秀的方案说明大赛够吸引参赛的年轻设计师的能力，也证明了大赛在解决世界性难题方面的价值。新一届设计竞赛决赛在即，青年智囊将如何解决主题为"每个人都丰收满盈"的大赛挑战，我拭目以待。

与此同时，我希望读者能够与出版参与者一样，享受本书带来的智慧激荡。

王才强教授 新加坡国立大学设计与环境学院院长

As Asia urbanises, many of its cities will adopt the paradigm of high density and high capacity vertical cities in order to limit urban sprawl, protect agricultural land and optimise resource deployment. This is especially pertinent in highly populated countries with limited developable land – a condition that is prevalent in Asia. Cities such as Hong Kong and Singapore epitomise this approach. The value proposition is that density works for cities and people by creating more inclusive communities, minimising carbon and eco footprints as well as improving economic vibrancy through enhanced diversity, connectivity and creativity. Tall buildings, if innovatively designed, can support mixed-use and inclusive communities, are energy efficient and has smaller eco-footprint per unit of floorspace.

However there are also challenges – from the technological to the social – associated with high densities. Proper governance, planning, design and research are necessary to deal with problems ranging from congestion, energy and water to pollution, noise and disease transmission. These become even more pertinent when densities become highly elevated.

The Vertical Cities Asia Competition and Symposium was created to provide a platform for staff and students from the consortium of ten participating universities across three continents – The Chinese University of Hong Kong, National University of Singapore, Tongji University, Tsinghua University, University of Tokyo, Delft University of Technology, Swiss Federal Institute of Technology (ETH) Zurich, University of California (UC) Berkeley, University of Michigan, and University of Pennsylvania – to research the various opportunities and challenges associated with this paradigm and spearhead an international effort to confront the realities of Asia's fast-pace high-density urbanization, and formulate appropriate sustainable solutions for very high density /high capacity compact cities.

While the 2011 inaugural event focused on the theme of "everyone needs fresh air", the current competition and symposium themed "everyone ages" cast a spotlight on the critical issue of ageing that confronts many countries. All across Asia, the number of people aged 65 and above is expected to grow dramatically over the next 50 years. For the region as a whole, the population in this age group will increase by 314 percent - from 207 million in 2000 to 857 million in 2050*. Changes that occurred over 50 years in the West are being compressed into 20 to 30 years in Asia. It is this pressing concern of rapidly greying Asian populations that the participating teams were challenged to address in this second of five annual competitions. Seoul, located in one of the fastest ageing countries in the world, was selected as the competition site.

The competition explores and addresses this concern by encouraging new positive approaches to ageing society that identify opportunities for maintaining capacities and well-being over the life course. By observing concepts such as 'active ageing' and 'ageing in place', the solutions aim to develop appropriate high density built environments, for both older and younger generations; a crucial element to successful ageing within the community.

Although seemingly technical in nature in terms of brief – housing a hundred thousand people in a square kilometre – the design solutions are largely conditioned by the wider cultural conditions of the countries/regions of the universities from which these proposals emanated.

'The Open Ended City' from Team A of the Delft University of Technology proposes a strategy which retains the contextual fabric of the city, while extending the dialogue between the past and the future. The design primarily focuses on creating conditions and rules that will guide the growth of the city, while uncovering and intensifying what already exists. By clearly defining a broad set of policies, the proposal aims to preserve qualities that make cities interesting and unique places, while allowing the city to take on a life of its own whilst gently guiding its growth.

'Life Time City', the other winning design from the Delft University of Technology aims to ensure that people will be able to live in Yongsan for their entire lives. The proposal observes the necessity of readily accessible basic urban services. Therefore, walking distances have become a tool for locating basic destinations such as the grocery shop, the hair salon, the community centre, and so on. Their proposal is one of inclusivity.

The second-place team from Tokyo University exhibited a keen understanding of the aged for whom they were designing, through the incorporation of a safe and convenient transportation system into their solution. Finally, Tongji University crafted a solution which enriches the site, taking history into consideration whilst developing a cost efficient proposal. These solutions and the many others detailed in this book, demonstrate the myriad ways in which the challenges can be addressed whilst retaining each people's unique cultural sensibilities and make-up.

In addition to the design competition entries from the participating universities, this book also contains reflections and contributions of the faculty and jury members during the accompanying symposium. Although each proposal presented an argument for the ideas and programmes that inspire the design; seen together, they are an argument for a multiplicity of approaches and for generating a vibrant debate. The spectrum of design approaches and breadth of ideas were also evident in the papers presented at the symposium.

This book is the culmination of years' effort that began with the conviction that Asia needs to confront the realities of rapid urbanization and urban sprawl that besiege many of its cities. It is my sincere belief that the Vertical Cities Asia programme is doing invaluable work to address all these issues.

I would like to take this opportunity to express my gratitude to Beijing Vantone Citylogic Investment Corporation (Vantone Citylogic), the World Future Foundation, and its chairman Dr Feng Lun, for generously supporting the Vertical Cities Asia programme. My gratitude also goes to Vantone Citylogic for sponsoring the publication of this book and the organization of the exhibition. It is these acts of generosity that allow us to spread awareness on the pressing challenges facing our world. And it is with their sustained support that we will continue to develop solutions for these pertinent issues.

I must also acknowledge the support of my fellow Deans and Heads of the schools, as well as the student teams and accompanying faculty for engaging fully with the topic and theme. Last but not least, my special thanks to the students, staff and faculty of the School of Design and Environment and its Department of Architecture for their help, in one way or another, in organizing all aspects of the programme: design competition, symposium, exhibition, publication and the logistics.

Looking at the solutions, I am encouraged by the knowledge and passion demonstrated by the students. Their designs are a testament to the impressive level of young talent gathered at the Vertical Cities Asia competition, and offer tangible proof of the programme's value in addressing the pressing issues facing the world we live in. With such bright minds tackling these challenges, I find myself eagerly awaiting the upcoming competition's results addressing the theme "everyone harvests".

In the meantime, I hope you will find the contents of this book to be as enjoyable and intellectually stimulating as it was for everyone who put it together.

Prof. Heng Chye Kiang
Dean, School of Design and Environment
National University of Singapore

Vertical Cities Asia
International Design Co

2011 — 2015 "亚洲垂直城市" 国际设计竞赛暨研讨会

如今, 亚洲正在经历着激动人心的快速城市化进程, 一场由农村向城市的大规模移民正持续不休地进行着。与此同时, 亚洲城市变得越来越密集, 越来越高, 其范围和强度可谓是史无前例的。现有的城市建筑与规划模式难以容纳增加的人口, 如果继续使用这种模式将会对土地、基础设施和环境造成毁灭性的影响。面对这一严峻的事实, 新加坡国立大学与世界未来基金会于2011年联合创办了名为 "亚洲垂直城市" 的国际设计竞赛及研讨会, 旨在为世界各地的科研学者和学生搭建一个独一无二的平台, 鼓励他们针对全新的未来城市模式展开深入的探讨和研究, 集思广益, 博采众长, 积极应对亚洲飞速发展的、高密度城市化现状, 同时也为亚洲地区高人口密度的超级大城市制订行之有效的可

持续发展方案, 在不影响生活素质的同时, 解决人口剧增的问题。

"亚洲垂直城市" 国际设计竞奖赛及研讨会由新加坡国立大学设计与环境学院主办, 世界未来基金会和北京万通立体之城投资有限公司联合赞助。大奖赛自2011年1月1日启动, 每年举行一次, 连续持续5年。每一届主办方将根据特定主题所涉及的针对性问题并结合亚洲本身具有的异质性文化选取亚洲某一城市的代表区域作为本年度的竞赛研究对象, 邀请全球十所顶尖大学 (新加坡国立大学、荷兰代尔夫特理工大学、苏黎世联邦理工学院、香港中文大学、东京大学、同济大学、清华大学、加州大学伯克利分校、密歇根大学及宾夕法尼亚大学) 的建筑系及相关院系的学生参赛。参赛者需在一平方公里的土地为

100 000人口进行规划设计, 同时以亚洲城市急剧发展为前提, 考虑密度、生活质量及可持续发展等要素。每所大学均挑选最佳的两个方案参加决赛。主办方希望通过这样一系列世界各地学生之间的竞赛, 激发他们对当前城市化背景下重大课题的思考并提出对应解决方案。最终, 设计评委将基于可持续发展、生活质量、可行性、切题度及科技创新五大标准评选出获奖作品, 并为获奖者颁发奖金。

Nowadays, the devastating effects on land, infrastructure, and the environment caused by rapidly expanding Asian cities are becoming serious and there is a pressing need to find solutions to address the problems
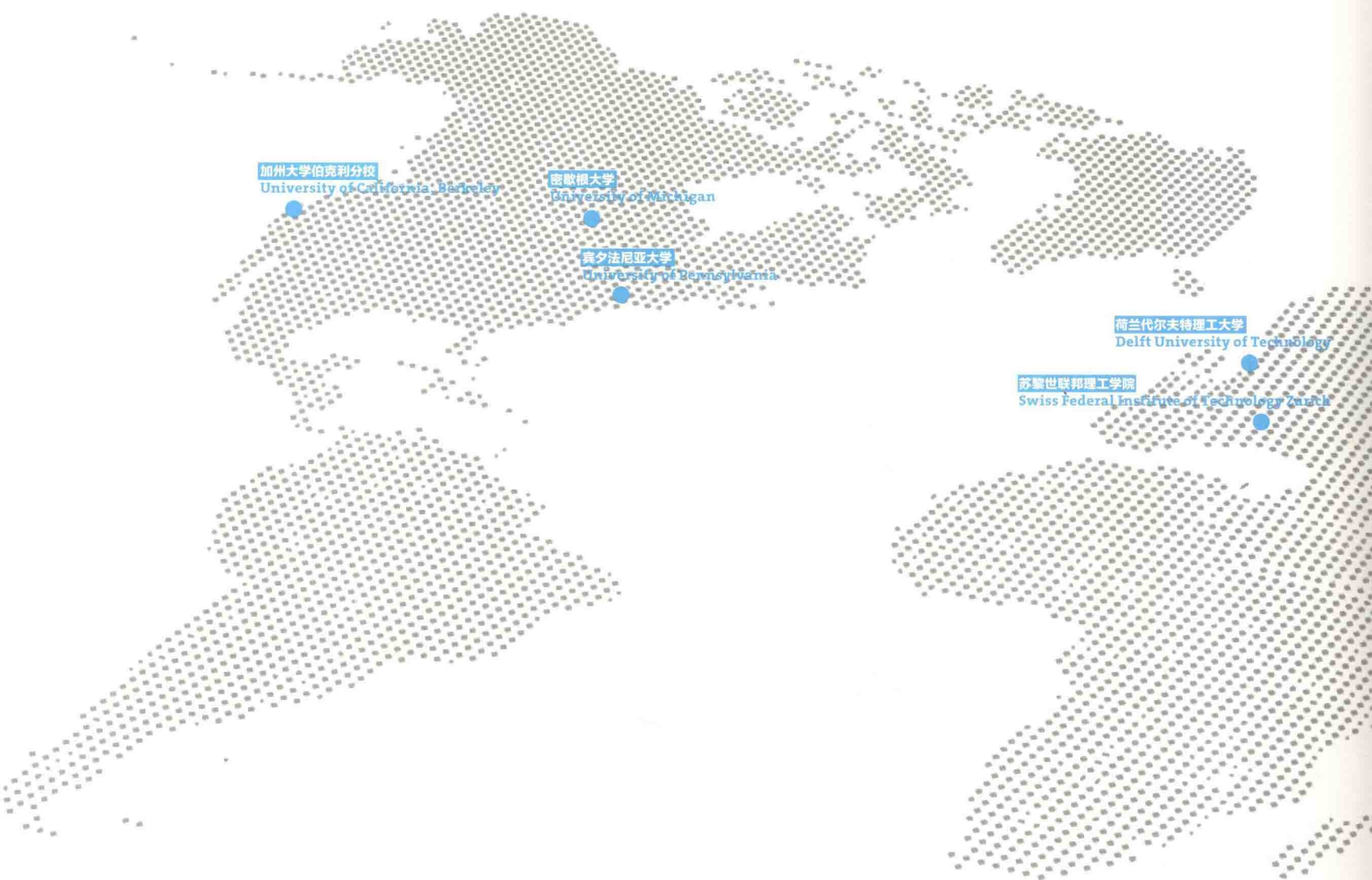
mpetition & Symposium

of urban sprawl, congestion and pollution faced by Asia' s overcrowded cities. Facing this severe reality, the National University of Singapore and the World Future Foundation launched the Vertical Cities Asia International Design Competition & Symposium, which is aimed at setting up a unique stage for personnel engaged in scientific research and studentsall over the world. The competition encourages them to carry out in-depth discussion and exploration into fresh models for future cities, allowing them to benefit from brainstorming and mutual learning as well as respond positively to the current situation of Asia's rapid, high density urbanization while also making practicable and effective sustainable development plans for Asia'sdensely populated metropolises.

The Vertical Cities Asia International Design Competition & Symposium is hosted by The National University of Singapore' s School of Design and Environment and jointly sponsored by the World Future Foundation Ltd and Beijing Vantone Citylogic Investment Corp. The competition, which was launched on January 1, 2011, is held annually and has been going on for five years in a row. Each year, the hosts will choose a representative area in Asian cities as an object of study for the annual competition according to specific problems. For the competition, students of architecture and related disciplines from 10 universities were tasked to design one square kilometre of land for 100,000 people, taking into account factors such as density, liveability and sustainability specific to the rapid and exponential growth of urbanism in Asia. Two proposals from each university were selected for the finals. The Design Jury assessed the entries in five areas: sustainability (environmental), quality of life (inclusiveness and community), feasibility (buildability, financial and social support), relation to context (place, awareness of conditions, climate and cultural milieu) and technical innovation (technology and techniques). The top three submissions were awarded cash prizes respectively.

加州大学伯克利分校
University of California, Berkeley

密歇根大学
University of Michigan

宾夕法尼亚大学
University of Pennsylvania

荷兰代尔夫特理工大学
Delft University of Technology

苏黎世联邦理工学院
Swiss Federal Institute of Technology Zurich

2012年"亚洲垂直城市"国际竞赛以"每个人都会变老"为主题",设计对象是韩国首尔龙山区的一个一平方公里的区域。亚洲在未来50年内的老龄化步伐将会加快，65岁或以上的人口预计将急剧增长，从2000年的2亿7百万增加到2050年的8亿5700万，增幅达314%。西方国家在50多年间所面对的老龄化挑战，亚洲国家却得在20至30年的时限内面对同一挑战。本次竞赛正是为亚洲的银色浪潮的到来寻求解决方案，竞赛旨在鼓励参赛队伍提出积极的老龄化应对方案，解决应如何抓住机遇、在维持现有城市功能水平的同时保障居民的终身福祉。设计方案考虑"积极养老"及"居家养老"等概念，目的为老人和青年打造合适的生活环境，这是社区应对老龄化的关键因素。

This year's competition explores the theme "Everyone Ages" and the design target place is located in one square kilometre of land in Yongshan district of Seoul . All across Asia, the number of people aged 65 and above is expected to grow dramatically over the next 50 years. For the region as a whole, the population in this age group will increase by 314 percent - from 207 million in 2000 to 857 million in 2050. Changes that occurred over 50 years in the West are being compressed into 20 to 30 years in Asia. Facing the pressing concern of rapidly greying Asian populations which the participating teams were challenged to address, the competition explores it by encouraging new positive approaches to ageing society that identify opportunities for maintaining capacities and well-being over the life course. By observing concepts such as "active ageing" and "ageing in place", the solutions aim to develop appropriate built environments, for both older and younger generations; a crucial element to successful ageing within the community.