

Creating Healthy & Resilient Cities





ASIA SOCIETY is the leading educational organization dedicated to promoting mutual understanding and strengthening partnerships among peoples, leaders, and institutions of Asia and the United States in a global context. Across the fields of arts, business, culture, education, and policy, the Society provides insight, generates ideas, and promotes collaboration to address present challenges and create a shared future. Founded in 1956 by John D. Rockefeller 3rd, Asia Society is a nonpartisan, nonprofit institution with headquarters in New York and centers in Hong Kong, Houston, Los Angeles, Manila, Mumbai, San Francisco, Seoul, Shanghai, Sydney, and Washington, DC.



THE URBAN LAND INSTITUTE is a global nonprofit education and research institute supported by its members. Its mission is to provide leadership in the responsible use of land and in creating and sustaining thriving communities worldwide. Established in 1936, the Institute has more than 37,000 members representing all aspects of land use and development disciplines.



THE PACIFIC CITIES SUSTAINABILITY INITIATIVE (PCSI) is a collaborative dialogue that aims to foster long-term sharing of urban sustainability strategies between communities across the Asia-Pacific region. Launched in 2009 with the support of the USC Marshall School of Business and the UCLA Anderson School of Management, the Initiative is a joint program of the Asia Society and the Urban Land Institute. PCSI convenes select thought leaders from business, government, and academia with the express aim of fostering new alliances, sharing innovative strategies, and showcasing effective practices. The first international forum was held in Hong Kong in 2013; the second in Manila, Philippines, in 2014; and the third in Beijing, China, in 2015. Previous fora were held in San Francisco and Los Angeles.

For more information about the Pacific Cities Sustainability Initiative, please visit ASIASOCIETY.ORG/PCSI

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PREFACE

THE ASIA-PACIFIC REGION is already home to some of the world's largest megacities, yet it is experiencing another wave of rapid urbanization. These new cities will transform into innovation hubs and economic drivers, but they are also destined to become major CO₂ emitters on the frontline of threats from climate change. Urban leaders are challenged to identify and share solutions for meeting the continuously increasing demand for housing, jobs, and infrastructure, without sacrificing essential needs such as fresh air, clean water, affordable housing, and green space.

Building sustainable, resilient, and livable cities resolves seemingly conflicting needs, bringing enormous quality of life and health benefits for both urban dwellers and the entire planet. By providing a range of active mobility options, cities lower greenhouse gas emissions, improve air quality, and increase opportunities for healthy lifestyles. Leveraging green infrastructure enhances water quality and reduces vulnerability to flooding while lessening the urban heat island effect. Compact communities with strong social connections enable residents to better prepare for, cope with, and recover from natural disasters while supporting the bonds that advance mental health and resident safety.

In April 2015, the Pacific Cities Sustainability Initiative (PCSI) 3rd Annual Forum in Beijing gathered more than 160 international experts from the private sector; public health, government, and non-governmental organizations; and academia for a multidisciplinary discussion about innovative solutions for creating healthy, resilient, and economically vibrant cities in the Asia-Pacific region.

The following document reports what was shared and discussed at the Healthy City | Resilient City Forum, including a summary of the topics discussed, key principles generated, additional insights from leaders who attended the Forum, and reflections on how to move forward.

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Opening night of the Healthy City | Resilient City Forum (Asia Society/Urban Land Institute)



Dr. Qiu Baoxing giving keynote speech at the Forum (Asia Society/Urban Land Institute)



UWE BRANDES
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INTRODUCTION

FOR THE PAST THREE YEARS, the Asia Society and the Urban Land Institute's Pacific Cities Sustainability Initiative have brought together some of the world's leading public and private sector and non-governmental leaders for an annual forum to unlock some of today's best practices in sustainable urbanization and community development in a pan-Pacific context. This year's forum, Healthy City | Resilient City, convened in Beijing, China, in April 2015, explored a diversity of subject areas related to themes of developing healthy urban places, built on last year's emphasis on resilience, and more importantly, provided important insights into China's rapid urbanization.

Recent accomplishments related to urban development in China are staggering. In the 35 years since 1980, nine Five Year plans have charted unprecedented urban investment, growing China's urban population by an estimated 440 million people and tipping the demographic balance of the country toward cities. Slightly more than 50% of the population now lives in designated urban areas, with another 250 million people expected to migrate to cities in the next 15 years. Today, well-known metropolitan areas—Beijing, Shanghai, and Guangzhou—have grown beyond their municipal boundaries and exceed regional populations of more than 30 million people while having firmly assumed their position on the stage of global gateway cities. Fifty additional cities have populations of more than two million people.

Against this backdrop, the 2015 PCSI Forum provided a highly diverse and unique interdisciplinary platform for a remarkably candid dialogue with more than 160 experts from around Asia and the world on the theme of healthy, sustainable, and livable urban environments as a point of departure. Three underlying trends emerged within this theme as it relates to China and its remarkable growth:

- **TRANSIT**—Public transit systems have been implemented in China at a scale and pace totally unprecedented in cities around the world. With more than 100 subway lines constructed in Chinese cities over the past 10 years, these systems have been enthusiastically embraced with standing-room-only vigor.
- **HISTORIC PRESERVATION**—Cultural heritage in the built environment has been broadly recognized and is valued by both public officials and markets. The preservation of cultural heritage and the retrofitting of historic human-scaled neighborhoods as a means of driving economic, social, and environmental benefits in the built environment are now no longer disputed.
- **PARKS**—The value of green infrastructure and reforestation is broadly recognized. For example, by leveraging green infrastructure, cities can enhance water quality and reduce vulnerability to flooding. These strategies are becoming the basis for integrated land-use decisions.



Forum participants mingle with one another during the coffee break. (Asia Society/Urban Land Institute)

As expected, many themes were discussed that represent current and future challenges in China's cities, as well as in other cities across Asia and the world:

- **SUPERBLOCKS**—The elemental building block of China's recent urbanization has been the deployment of wide avenues and superblock community developments: 500-square-meter, single-use, complexes that are difficult to traverse and contain limited open spaces. Hundreds of these projects are being implemented in cities across China, yet multiple challenges are associated with this urban rubric, such as intensified traffic movements, profound life-work imbalances, and a lack of social resilience related to anonymity and a broken social fabric.
- **LAND-USE AND INFRASTRUCTURE INTEGRATION**—While the sheer scale of both infrastructure and housing development is impressive, many cities are now realizing that inadequate integration between housing, jobs, and infrastructure has led to excessive commutes or a reliance on the automobile. The solution to reducing overwhelming traffic congestion—and the associated greenhouse gas emissions—lies not in the construction of more roadways, but in the blending of housing and commercial land use and the construction of a more human-scaled built form.
- **REGULATORY ENFORCEMENT**—The gap between policy making and regulatory enforcement must be filled, especially with respect to new building management strategies such as recycling and energy conservation. Narrowing this gap is a key challenge in light of the clearly stated public policy goals for greenhouse gas reductions.
- **AIR QUALITY**—Unsustainable urban planning and building design lead to heavy dependence on automobiles and overconsumption of energy, which in turn are major contributors to urban air pollution. Careful urban and transportation planning, such as building small blocks and dense networks of bicycle and walking paths, can cut transportation energy use by half and make an immense difference.

Like China, many countries are seeking better ways to build healthy, resilient cities as urbanization continues. Our hope is that this report and the ideas within it will provide some insights into solutions to the challenges in building tomorrow's cities.

Uwe Brandes is the Executive Director of the Urban and Regional Planning Program at Georgetown University. He served as the Program Co-Chair for the 2015 PCSI Forum.

OPENING ADDRESS

Lynn Thurber: A Healthy City Is a Resilient City



ULI'S GLOBAL CHAIRMAN LYNN THURBER provided the opening address for the Forum. Thurber remarked that she was particularly proud of ULI's work in Asia and the partnerships forged there.

On first seeing the title of this event, “Healthy City, Resilient City,” Thurber recalled that she wondered whether discussions would center on cities designed to promote health or cities designed to be resilient: “They are both very important attributes, and each of these topics can stand on its own as subject matter for a forum on building livable, thriving communities.”

Thurber reviewed many ULI programs that explore the intersection of land use, health, and resilience. These initiatives include the Building Healthy Places Initiative, the Center for Sustainability, and a city walkability guide by ULI's Singapore team.

She noted, “As ULI has delved into these issues, what ULI has found—and what I have come to deeply appreciate—is that there is considerable overlap between healthy communities and resilient communities. It's becoming clear that design and development aimed at making communities healthy places to live and work also make them more environmentally sustainable and economically prosperous. And that is our topic for this Forum. Designs that promote both health and resilience ensure cities are livable and sustainable.”

Urban stakeholders need to change what, how, and where things are built. According to Thurber, simply building urban areas as we have for decades or indeed rebuilding what existed before a natural catastrophe is a misguided approach. “We need to build and rebuild better and smarter—always putting people first,” said Thurber.

Thurber emphasized that the Forum's focus, Healthy City | Resilient City, is an opportunity to advance knowledge and expertise in building communities that withstand the tests of time and change.

“This evening's presentation is the first of many we will have over the next two days on how to create healthy, resilient environments in Asia's high-density cities,” said Thurber. “While much of the dialogue will focus on Asia, health and resilience are particularly timely issues for cities around the world.”

Lynn Thurber is the Chairman of Urban Land Institute and the Chairman of LaSalle Investment Management.

Kevin Rudd: Cities Must Play a Leading Role in the Global Response to Climate Change



IN HIS INTRODUCTORY REMARKS, former Australian prime minister and inaugural president of the Asia Society Policy Institute, **KEVIN RUDD** said that cities have the imperative and the ability to address the growing dangers of climate change, which he said is the biggest challenge facing humanity. Rudd added that China and the United States, as the two largest CO₂ emitters, must work together for any climate solution to work.

Rudd expressed confidence in the innovation, creativity, and determination of the people of both countries in addressing the challenges posed by climate change and sustainable development.

Speaking to the role that cities can play in addressing climate change, Rudd noted that more than half of the world's population lives in cities, and that cities generate a huge amount of greenhouse gas emissions. Rudd also said that national governments have an important role.

“The first thing governments can do, at the national level, is put a price on carbon,” he said. “My observation of human behavior is that behavior changes in response to either (A) price or (B) regulation, which is enforced.”

The advantage of putting a price on carbon instead of using regulations, according to Rudd, is that “it creates a market mechanism through which firms and emitters, across the world, can respond flexibly according to the price that's been set.” The responses can include reducing energy use or switching to alternative energy sources to improve overall energy efficiency. “It is remarkable, when you look around the world, how energy inefficient we still are,” said Rudd. Rudd emphasized that energy efficiency measures take effect only in response to price: “If the price of energy is subsidized, people will not be induced into embracing the energy efficiency measures they need.”

On the supply side, Rudd said we need to cause the renewable-energy sector to have sufficient critical mass that can begin to take over a large part of the global demand for electricity. “Unless we are firmly focused on what happens on the supply side and the demand side, all the proclamations in the world won't produce a reduced greenhouse gas footprint,” said Rudd.

He added that absent a binding global treaty on emissions, cities must take the lead in action in this area: “There is a concentration of sheer intellectual horsepower, of markets, of finance, of the ability to make climate change solutions work on the ground.” But according to Rudd, whatever is done in cities can be only part of the solution. National governments must be brought into the equation as well: “Unless that happens, you will simply pass the ball down to the next generation, and the next, until it is too late.”

“We're all in one boat,” said Rudd. “It's called Planet Earth. If we work together on pricing, on energy efficiency technologies, and on alternative energy supply, then frankly we can save the planet.”

Kevin Rudd is the President of Asia Society Policy Institute and the Former Prime Minister of Australia.

(Reported by Thomas Rippe)

MOBILE WORKSHOPS

The Forum kicked off with mobile workshops to several sites in Beijing and Shanghai, where delegates visited projects that exemplified some of China's efforts to build more healthy and resilient cities.

The Beijing mobile workshop included visits to

- [Tsinghua University](#), where two passive-house–designed buildings that result in extra-low energy consumption are showcased;
- [iSoftStone Technologies](#), a leading company spearheading smart city technologies to better manage urban resources;
- [Beijing Financial Street](#), an area where a unique blend of office, residential, and retail space transects the typical superblock development pattern;
- [Wangfujing](#), Beijing's most famous shopping district with pedestrian streets; and
- [Beijing Central Business District](#), the center of finance, media, and business services in Beijing.



Beijing mobile workshop participants, alongside a model of Beijing Financial Street (Kyle Sigdian Graycar)

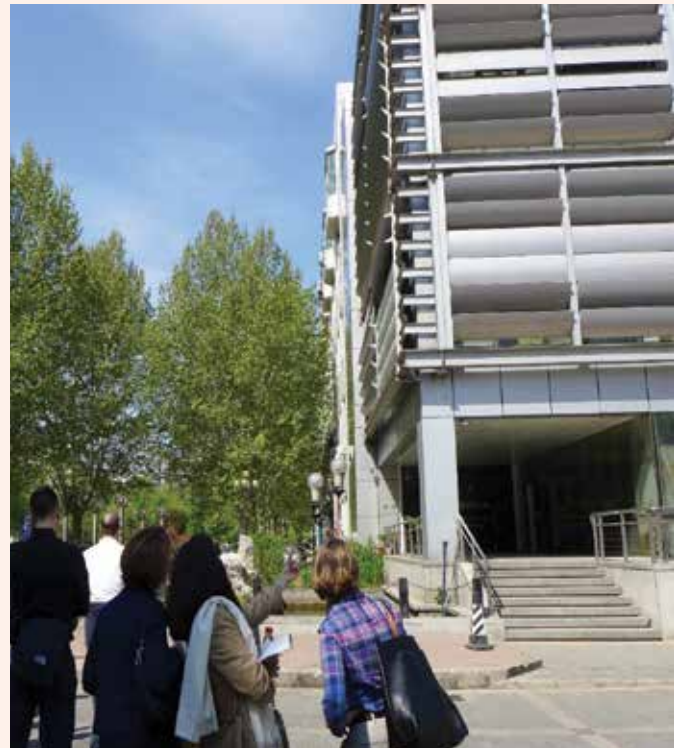


Participants at the mobile workshop in Shanghai (Asia Society/Urban Land Institute)

The Shanghai mobile workshop included visits to

- [Shanghai Urban Planning Exhibition Center](#), which showcases Shanghai's urban planning and development;
- [Disney Research China office building](#), where the company's research teams are uncovering new forms of energy performance contracts, advanced energy-saving technologies, and continuous monitoring and assessment of energy conservation efforts;
- [Changing Non-motorized Transportation Project](#), which exemplifies how people-oriented design and the separation of driving, cycling, and walking lanes can contribute to low-carbon development;
- [The Hub](#), which is the only commercial complex in China that is directly connected to a transport hub consisting of an airport, high-speed railway station and a subway interchange; and
- [Shanghai Xintiandi](#), an affluent car-free shopping, eating, and entertainment district, considered one of the first lifestyle centers in China and known for preserving the old Shanghai architecture style known as "shikumen".

Beijing mobile workshop participants visited the energy-saving building at Tsinghua University. (Asia Society/Urban Land Institute)



HEALTHY CITY, RESILIENT CITY FORUM INSIGHTS

PANELS AT THE PCSI FORUM explored issues such as China's urban growth trajectory, Beijing's future, lessons learned from other high-density Asian countries, the social dimensions of health and resilience, and integrating health with infrastructure and planning. The following provides some key insights gathered from the two-day discussion.

HEALTH, RESILIENCE, AND THE PROMISE OF PACIFIC CITIES

Wellness needs to be a priority in city planning, but it is often made more difficult by uncoordinated development activities. To address this, public health and urban development goals and nomenclature must be standardized and integrated. **Mao Qizhi** from Tsinghua University and **Nicholas Brooke** of the Professional Property Services Limited underscored that once these ideals have been defined, urban and health stakeholders can work together to translate long-term community health principles into permanent city-building strategies. **Sophia Qiu** from Harvard University remarked that thinking about the indoor environment is essential, as we now spend the majority of our time indoors.

To build healthy cities, **Lin Jiang** from the Energy Foundation said, "Something new doesn't always address the fundamental challenge for cities, but our definition of what a good city is will always remain the same. Good cities are flexible and can be broken into parts, designed with people in mind, and create an emotional connection for people." Lin pointed out that there are growing numbers of enthusiastic walkers and hikers in cities. This is a great way to practice a healthy and low-carbon lifestyle, but often the road infrastructure does not serve these people well. He emphasized that connectivity is at the heart of the issue, and we need to evaluate how to make streets friendly to walkers and bikers.

URBANIZATION IN CHINA

Demographers suggest that China is at the midpoint of a century-long arc of rural to urban migration. While rapid urbanization has created huge economic opportunities and alleviated poverty, it also comes with challenges such as overcrowding, transport congestion, and pollution. This ultimately leads to public health concerns including respiratory disease and rising obesity.

Shaping urban growth in the coming decades will require leaders to develop flexible and adaptable communities. Neighborhoods must be planned so that people can come together without needing to drive cars.



Kenneth Rhee, Albert Chan, Wu Jiang and Wang Haitao discuss urbanization in China. (Asia Society/Urban Land Institute)



N. Bruce Pickering, Tom Murphy, Arata Ichihashi, Lee Inkeun, and Wang Lin discuss urban innovations. (Asia Society/Urban Land Institute)

Consumers feel safer in these areas and prefer a mixed-use, pedestrian-friendly development, especially around places with cultural significance.

Albert Chan of Shui On Land shared his perspective as a developer: “Within this incredible process of Chinese urbanization, we need to develop whole communities—not just buildings, but all the spaces in between. Let’s really think about what happens to people who come to our places to live, work, and play.”

As a medical professional, **Wang Haitao** of the Chinese Academy of Medical Sciences compared cities to the human body. He pointed out that cities can get sick too, with ailments such as traffic congestion, environmental pollution, and bio-threats that endanger city vitality. Similar to human bodies, these ailments should be addressed in a systematic way. Professor **Wu Jiang** from Tongji University expanded

on this idea: “Humans should not be thought of solely in terms of the human body. We must also consider the psychological aspect. Humans have social, psychological, and cultural needs. Appropriate urban design will make its inhabitants not just physically resilient but also socially resilient. Density of cities not only means population and buildings, it also means activities and more possibilities for happiness.”

THE PATH TO INNOVATIVE OUTCOMES

Urban leaders are innovating to overcome major urban challenges in health and resilience. For any successful urban sustainability initiative, all stakeholders need to proactively build partnerships and plug into a network of experts across fields and expertise. “We still need to give more opportunity for the public and private sectors to work together and negotiate planning better,” emphasized **Wang Lin** from the Shanghai Planning Authority. “In local areas, everything is connected, but there are glass walls between subject-matter experts that prevent effective collaboration. We need to break these walls,” Lee Inkeun from the Land and Housing Institute of Korea pointed out.

Governments play a central role in mobilizing cross-sectoral collaborations, but grassroots organizations also need to be included, according to **Tom Murphy**, who recounted his experience as mayor of Pittsburgh, Pennsylvania. **Arata Ichihashi** of the Tokyo Metropolitan Research Institute for Environmental Protection shared his experience in a school renovation project in Edogawa City, Japan, where local community leaders worked together to make the sustainable use of energy and water resources a reality. According to Ichihashi, “Governments don’t need to do everything by themselves. Much can be accomplished from a bottom-up approach.”

SHAPING BEIJING

More than 3,000 years old, Beijing is more than China’s governing capital: it is a gateway to the world and a thriving center of business, culture, finance, and the knowledge economy. Like many megacities, Beijing is facing acute challenges in the areas of water, pollution, and traffic. Beijing is forced to balance the needs of pedestrians and bicyclists against the needs of automobile drivers, and the desire for progress against the desire to preserve historic sites. As a proving ground for progress in Asia, Beijing will undoubtedly provide a critical reference for other Asia-Pacific cities.

“Beijing’s air pollution comes from decades of industrial development, so this cannot be solved instantaneously,” said **Bian Lanchun** from Tsinghua University. He advised that the city think about

how to curb air pollution through urban planning and balance the needs of livability and industrial development. Since coal is a major source of pollution in China, substituting clean energy sources for coal is an imperative for healthier growth, **Qian Jingjing** from the Natural Resource Defense Council added.

To reduce pollution and climate-changing carbon emissions from transportation, Beijing's municipal government has been taking measures such as developing subways, license plate-restricted driving, and bike-sharing programs. Du Liquan of the Beijing Municipal Institute of City Planning and Design emphasized that this needs to be implemented holistically, ranging from estimating transportation demands to readjusting the mix of transportation options to promote bicycling and walking.

Regarding water scarcity issues, Du pointed out that water diversion projects would not satisfy all demands, so conserving water needs to be a basic principle for urban planning. This has to be integrated across all sectors, including agriculture, industry, and residential consumption.

SOCIAL CAPITAL: PLANNING FOR SOCIAL COHESION AND BEHAVIOR CHANGE IN CITIES

Urban form and public space can contribute to social health and feelings of belonging and can also enhance social cohesion. Social cohesion, in turn, promotes resilience during times of crisis, by fostering a stronger social fabric and community integration. In China, this is traditionally referred to as a “complete community” and is realized in public spaces such as outdoor recreation areas. **Liu Jian** from Tsinghua University explained, “We shape the environment and the environment shapes us. Complete communities are a combination of land use and social groups. This is important both physically and psychologically. Since our community is important social capital, we need to maintain this social and land-use mixture.”

Members of a united community will be better able to look after one another in the event of disruption. **Liu Thai Ker**, chairman of the Center for Livable Cities, emphasized that human beings are spatial animals who interact in many types of spaces. Walkable communities and neighborhood centers with various social activities help build social cohesion.

Kizzy Charles-Guzman, policy director of the Nature Conservancy in New York City, added: “Neighborhoods that are diverse and have strong social capital have much lower homicide rates, rates of depression and anxiety. They have the know-how to maintain informal social controls.” She said New York is known as a transient city, a city of renters, so this is particularly important. In New York, government-sponsored programs such as tree planting and schoolyard upgrades help foster the social connectivity needed to quickly respond to disasters such as Superstorm Sandy.

“The peripheries of cities also should not be neglected,” **Guy Perry** from AECOM emphasized, “those areas often are user or market specific and are hard to be brought together into a healthy urban tissue over time. New developments need to be flexible to integrate them from the very beginning.”



Liu Jian, Kizzy Charles-Guzman, Guy Perry and Jonathan Woetzel discuss social cohesion and urban resilience. (Asia Society/Urban Land Institute)

URBAN INFRASTRUCTURE

Innovations in infrastructure planning and delivery are creating new urban systems that are more responsive, functional, sustainable, and intelligent. In newly developing cities, infrastructure decision making can be focused on healthy living and long-term resilience by prioritizing the experience of pedestrians. In older cities, obsolete infrastructure can also be rebuilt and repurposed in ways that enhance health and maintain cultural heritage while improving sustainability.

Ben Schwegler, senior vice president and chief scientist from Walt Disney Imagineering Research and Development, emphasized that in the past it was common practice for planners to wait until developers show up with an idea of what they want to do and then build infrastructure to suit their needs. For more resource efficient development, we should start with comprehensive, mixed-use infrastructure and then develop around that.

To make public transportation more convenient and enjoyable, **Yang Jiang** from the China Sustainable Transportation Center, introduced the concept of making streets SMILE (Small, Maintained, Integrated, Lively, and Enjoyable).

Patrick Condon, professor from the University of British Columbia, highlighted significant positive health impacts of active transportation scenarios that could be enabled by transportation infrastructure from his research and similar studies and case studies from other researchers. Cities in the Asia-Pacific region are already working on this. In Seoul, for example,

there has been a recent paradigm shift from driving cars back to walking, notes **Joonho Ko** from the Seoul Institute. Highway flyovers were demolished and removed in multiple places. This enhanced urban scenery and vitality, without degrading (and in many cases even improving) traffic conditions in the city. The 2030 Seoul Transport vision is a livable Seoul without reliance on cars.



Seoul's Cheonggyecheon stream (Image via Flickr/Inhabitat)

ASIA LEADING THE WORLD IN SMART CITIES

Technology enables new ways of creating value in urban economies. City builders can hone business models by finding new planning patterns with global data on cloud technologies. Big data analytics can bolster environmental protection and energy-saving initiatives by modeling pollution levels and locating point sources. When natural disasters occur, governments at a command center can efficiently respond to priority areas indicated by sensors around the city. These are but a few examples of how technology will advance urban livability and resilience.

On the other hand, as executive vice president of iSoftStone **Walter Fang** pointed out, technology is a double-edged sword. It can be an awesome tool, but applying it differently can be hazardous. He suggested that urban leaders focus on using technology to modernize industries and thus increase a city's environmental performance.

For smart cities to be successful, **Katherine Shen**, the development director of WW Industry Solution Software, said two components are necessary: business motivation and right technologies. Business motivation should make the city friendlier toward citizens, help the government improve governance efficiency, and contribute to economic growth. Technology, such as cloud tech and big data analytics, can be applied to accomplish this.

PRINCIPLES FOR INTEGRATING HEALTH AND RESILIENCE IN ASIA-PACIFIC CITIES: FROM DIALOGUE TO ACTION



Beijing Forum participants at the roundtable discussions (Asia Society/Urban Land Institute)

THE FORUM FEATURED an interactive opportunity for all participants to discuss, debate, and share their own experiences about how to build and shape cities that enhance and protect the well-being of the people who live in them, while remaining environmentally sustainable.

Following the creation of the principles, the group then determined the potential needs of different stakeholders for the principles to be implemented, developed key messages about integrating health and resilience into urban planning and development, and then mapped out plans and strategies for moving forward from dialogue to action.

SUMMARY PRINCIPLES FOR INTEGRATING HEALTH AND RESILIENCE IN ASIA-PACIFIC CITIES

1. Put people first by creating **compact, mixed-use, transit-oriented** communities.
2. Foster communities that are **diverse** in age/generations, social class, and perspectives.
3. Engage **stakeholders** and communities collaboratively with platforms for open communications, incorporate **values of diverse** stakeholders, and build from understanding of **community needs**.
4. Make a community's **unique** character/spirit, culture, history, values, and context core to building a **sense of place and identity**; embrace **cultural and historical preservation**.
5. Design high-quality **integrated infrastructure** to improve air and water quality; prioritize active mobility and sharing the street.
6. Increase walkability through **fine-grain** movement network and building sizes; break down **superblocks** to enhance connectivity.
7. Create opportunities for **social interaction and engagement**; incorporate **programs** that support the vitality of communities; **animate** public space.
8. Adopt **incremental**, adaptive, **small-scale** approaches and processes to enhance flexibility and build a sense of **belonging**.
9. Provide **access** to key institutions and amenities; plan around **nodes**; view a place in the **context** of the whole.
10. **Integrate** land-use, energy, and health care planning.
11. Recognize the importance of **leadership** from the public and private sectors; work **across silos**; train people across sectors.
12. Establish stringent **environmental regulations**.
13. Prioritize **long-term** rather than short-term goals and gains; ensure sustainable **funding**; insist on quality design, construction, and maintenance.
14. Empower people with health-monitoring **data** to quantify the impact of design; establish measurable performance **outcomes**.

NEEDS OF STAKEHOLDERS AND KEY MESSAGES

Public officials require assistance in two areas. First, they need instruction on how to implement guidelines in urban practice. Sophisticated deal makers are necessary to make this a reality. Officials need help on understanding how policies and development rules differ depending on location. Second, officials need the tools necessary to craft comprehensive development budgets. One challenge, for example, is to uncover ways for governments to estimate the costs of an unhealthy populace resulting from poor urban planning decisions.

Key message: Healthy and resilient development is a key economic and social driver for a city. Utilize this opportunity to not only prepare your urban spaces but also make them thrive.

Developers are too often seen as motivated purely for profit. Instead, this outlook must shift toward approaching developers as partners. Furthermore, regulations might stifle creativity and choices for developers. Instead, officials and developers should work together and focus on win-win projects. This requires clear and concise communication between these two parties. To create resilient neighborhoods, developers will also need a level playing field in transactions.

Key Message: Do not focus only on short-term gain. Developers who think long term will come out ahead.

Architects need more education and training on how to design cities, neighborhoods, and buildings for resiliency and health.

Key Message: Architects are at the intersection of this entire conversation between developers, investors, and the community. They need to be advocates of sustainable communities. Shift this conversation toward the construction of healthy, livable spaces.

Investors need to align their financial time frames and targets with what other stakeholders are prospecting. Business models need to be adjusted so that healthy, resilient cities are a core aspect of accounting.

Key Message: Healthy initiatives can deliver healthy returns. Quality projects with long-term viability are good investments. Great projects will also make great communication stories.



The media need to find ways to break down this complicated topic and make it relatable to the general public. For maximum effectiveness, an emphasis should be placed on aligning urban resiliency principles with current events topics.

Key Message: Create regular forums on topics such as public health, social capital, and community engagement. Use all available media platforms to communicate to the public the urgency of this matter.

Beijing Forum participants at the roundtable discussions (Asia Society/Urban Land Institute)



QIU BAOXING
CHINESE SOCIETY FOR
URBAN STUDIES

FEATURED CONTRIBUTIONS

The A, B, C Models of Low-Carbon Cities and Their Respective Resilience

THE RESILIENCE OF A CITY is defined by the awareness and participation of its citizens. A core principle for designing cities must be to put people at the forefront of development thinking. Prioritizing people balances local needs and culture with the introduction of new technologies and ways of thinking, fostering a resilient urban framework. The importance of putting people first in urban design can be explained by discussing three models of urban development.

The first model, Model A, involves cities that feature the highest levels of modern technology and smart city infrastructure but fail to include society's role in resilience. These cities can be considered "low-carbon machines," functioning apart from the areas with actual inhabitants. Although environmental targets might be attained, society cannot be sustained because of a lack of social capital or self-promoting resilience capacity. Masdar Ecological City fits into this category, which is still on industrial civilization's traditional path. It is a challenge to nature. It does not really think too much about how humans fit in. With extremely high costs, this city is able to achieve zero emissions. However, the city is ultimately unsustainable because of high costs inhibiting replicability. Model A is most useful in that it can serve as a case study on incorporating technology in the urban fabric.



Masdar City in Abu Dhabi, the United Arab Emirates (Image via Flickr/Inhabitat)



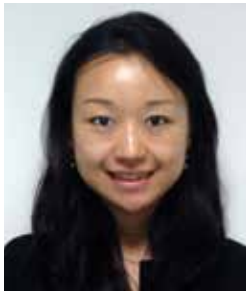
Personal Rapid Transit terminal in Masdar City, Abu Dhabi, the United Arab Emirates (Image via Flickr/ André Diogo Moecke)

Second, Model B is a passive approach to urban design, attempting to avoid urbanization to the maximum extent and return to rural living. Huangboyu village's low-carbon demo project is an example. Established in a rural area, all of the homes in the project have remained vacant because people have no desire to leave their communities and live there. The root cause of this problem is that the designer does not understand the needs of the local people. Resilience in project design might be accomplished, but this model lacks government facilitation, labor division, and the community framework found in urban areas.

Model C is the ideal urban model, balancing cost with environmental targets and human orientation. This is a long-term, three-dimensional approach to social, environmental, and economic sustainability. Because of this balance, the category is self-promoting and easier to replicate elsewhere. Furthermore, people are the ultimate priority in this model. By respecting nature, local culture, and space adaptability, people can be put at the forefront of resilient design. One approach is to focus design on walkability and creating metro-friendly neighborhoods. This also must include incorporating helpful technologies such as greywater recycling. Model C is in fact a traditional Chinese approach of creating harmony between humans and nature.

Models A and B fall into the "low-carbon trap"; they are not replicable and thus should be avoided by urban leaders. Putting people at the center is the real soul of a low-carbon future. While planning for future cities, priority should always be placed on considering master plans from a citizen's perspective, balancing multiple resilience strategies. Building a truly healthy, resilient city must respect local culture and local intelligence when adopting a diverse portfolio of sustainable technologies.

Dr. Qiu Baoxing is currently serving as the Counselor of the State Council of China and President of the Chinese Society for Urban Studies. Dr. Qiu is also the Former Vice Minister of the Ministry of Housing and Urban-Rural Development of China.



YANG (SOPHIA) QIU
HARVARD UNIVERSITY

Health as Both the Determinant and Outcome of a Resilient Built Environment

TODAY'S CHANGING GLOBAL CLIMATE poses new challenges to human development. Unprecedented urban development is happening in parallel to rapid depletion of natural resources and frequent occurrence of extreme weather events that collectively reflect the stress experienced by the natural environment. Such stress is transferred to the built environment through conditions such as wider fluctuations of temperature and changing regional humidity.

Consequently, environmental stress, both natural and artificial, imposes pressure on the human body as the physiological system tries to adapt to more extreme external stimuli. Moreover, urban development has health implications: concentration of human population, increased interactions between individuals, and a sedentary lifestyle have collectively led to changing disease manifestations and changing conceptualizations of well-being in the context of the urban environment.

With more than half of the global population living in urban areas today and the ever-increasing pace of urbanization worldwide, urban residents are adapting to a lifestyle that is mostly confined within the built environment. Urban residents spend 70% to 90% of their time indoors, with the vulnerable populations, namely children and the elderly, spending even more time inside. Thus, the built environment plays a key role in defining individuals' well-being and the populations' health.

At the building level, building structure and materials create an indoor environment that is confined and contains concentrated emission sources. Material emissions combined with human activities generate a large amount of chemicals that have a demonstrative effect on health outcomes, such as asthma. The use of natural light in the built environment is known to be associated with improved cognitive functions and productivity. Moreover, recent studies have further quantified the benefit of greenness in the urban environment. Thus, thoughtful and health-oriented building engineering on air flow design, use of natural light, and incorporation of greenness are basic and invaluable steps toward creating healthy structures.

Designing with occupant comfort and population health in mind can foster short-term and long-term health outcomes. Moving beyond singular buildings, today's urban communities formed with building clusters also shape population health. A resilient community has health-promoting infrastructure, engaging social networks, and healthy individuals.

Resilient cities depend on a resilient natural environment, a resilient built environment, and, more importantly, a resilient population. While the changing global environment and rapid urbanization process pose many challenges in urban development, there are also unparalleled opportunities to foster resilient populations through resilient built environments. The formation of health-promoting infrastructure for resilient cities requires health-oriented urban planning and architectural design, which consider the structural parameters that influence health outcomes. The built environment, in turn, can directly contribute to the overall resilience of the city and can indirectly influence urban resilience through its effect on population health. Population health, then, is both a determinant and an outcome of resilient cities, mediated through the built environment.

Dr. Yang (Sophia) Qiu is a Researcher in Environmental Health and Sustainable Development at Harvard University.



WALTER FANG
iSoftStone

Innovation Drives the Development of Smart Cities in China

JOSEPH E. STIGLITZ, Nobel laureate in economics and professor at Columbia University, once said: “China’s urbanization and America’s high-tech will be the two great engines of world economic development in the twenty-first century.” In fact, the development of smart cities is being considered at the national strategic level; it also reflects the important implementation of China’s modern urbanization.

So far, the market size of China’s smart city projects has already exceeded 1 billion US dollars. Development of smart cities in China has gone beyond concept introduction and moved into a phase of wide-ranging implementation and comprehensive promotion. Many new opportunities have emerged for smart city development with the application of cutting-edge technologies, such as cloud computing, big data analytics, mobile Internet, Internet of things and social networks. For example, while large volumes of data have been generated explosively along with city construction and expansion, like a flood flowing through the cities’ lifelines in traffic, medical systems, and all other dimensions of city life, big data analytics also provides a means to support better and smarter decision making in various areas of smart city development.



Energize Our City for the Future Smart Life (iSoftStone)

The development of smart cities cannot be realized without an innovative “Internet+” thinking. An important feature of the China’s smart city development is that it is driven and powered by innovation. Differences in culture, resources, and other factors have led to different requirements for innovation in different countries. In China, the government is strongly advocating Internet+ as a new economic pattern, and the government is pushing for the integration of the achievements and results from innovation into the fabrics of all aspects of economy and society.

The development of smart cities also depends on highly coordinated collaboration between government and enterprises; innovative mechanisms need to be created and resources need to be allocated wisely. As an active contributor to and participant in China’s smart city development, iSoftstone is advocating the ideology that “industries take the lead of smart city development.” Through the cooperation among multiple parties and stakeholders in the ecosystem of smart city development, we can push forward the upgrade and transformation of the industries in the city, thus achieving an integrated, well-concerted, harmonious, and sustainable growth of industries and the city.

Smart city development needs to be people oriented. To drive innovation, we need to attract and retain innovative talents in the city. By encouraging millions of people to start businesses as entrepreneurs and all people to innovate, China hopes to acquire talented people and their innovative strengths to build up vibrant smart cities; this also will be an important feature of China’s smart city development going forward.

Walter Fang is Executive Vice President and President of Corporate Marketing & Strategic Alliance Partnership with iSoftStone Group.



Beijing Zhongguancun night view (Image via Flickr/Rex Han)



JAMES S. LEE
iCONTINUUM

Urban Planning Framework for Density, Health, and Resilience

LARGE-SCALE, HIGH-DENSITY DEVELOPMENT is a hallmark of China’s urbanization. The ULI–Asia Society’s 2015 PCSI Forum provided an opportunity to consider the connection between urban planning, density, health, and resilience. How should we understand “health” in the urban context? How do we structure an urban planning framework that promotes high-density land use, health, and resilience? The PCSI Forum sparked my thinking about the following conceptual framework.

In an urban context, it is useful to broaden the definition of “health” from personal health to health of the “urban ecosystem.” The latter may be simplified into social, environmental, economic, and policy subsystems. The health dimensions of an urban ecosystem follow:

HEALTH DIMENSIONS

Urban Eco-Subsystem		Attribute
Social	Personal	Healthy lifestyle, sense of place and identity
	Community	Social diversity, cohesion and community building, quality living
Environmental	Nature	Eco-diversity, urban forestry and agriculture, green infrastructure
	Buildings	Active design, energy efficient
	Streets	Fine grained and amenitized
	Public Space	Animate and activate through active design and programming
	City	Compact, people centered, and transit oriented
	Infrastructure	Integrated infrastructure (land use, transit, energy, health care, public safety and security)
Economic		Diverse, nimble, data driven, and innovation driven
Policy		Integrated proactive policies, stringent regulations

Resilience, the capacity to respond to adverse change, gradual or sudden, can be considered in four dimensions:

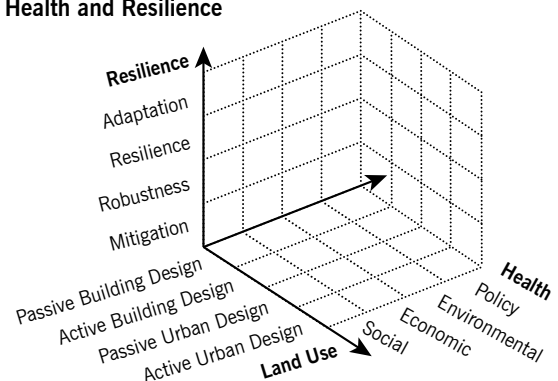
RESILIENCE DIMENSIONS

Dimension	Goal	Attribute
Mitigation	Prevent	Efficiency, economy, practicality
Robustness	Fortify against	Capacity, strength, redundancy, diversity
Resilience	Rebound from	Connectivity, mobility, readiness, trust
Adaptation	Improve upon	Flexibility, adaptability, upgradeability, scalability

As urban and building designers, we create the spatial and activity settings for urban life, deploying passive and active design strategies to mitigate the impact of density. Thus, an urban planning framework that promotes a high-density, healthy, and resilient urban ecosystem might look like this:

James S. Lee is an architect, LEED Accredited Professional, Certified Property Manager, and founder of iContinuum Group.

Urban Planning Framework for High-Density Land Use, Health and Resilience





GUY PERRY
AECOM

Urban Development Patterns and Well-Being in Contemporary Cities

WE ARE INCREASINGLY AWARE of how our environment impacts our health and well-being in new ways. During the past few decades, concerns have evolved from sanitary conditions and communicable disease transmission to the recent unprecedented increase in noncommunicable diseases such as obesity and diabetes. Recent urban development patterns often fall into two extremes: horizontal sprawl and hyper density, with each producing new challenges to the health of inhabitants. The way we shape our environment and consequently our lifestyles at the urban design level has a significant impact on our likelihood of postponing or avoiding many noncommunicable diseases.

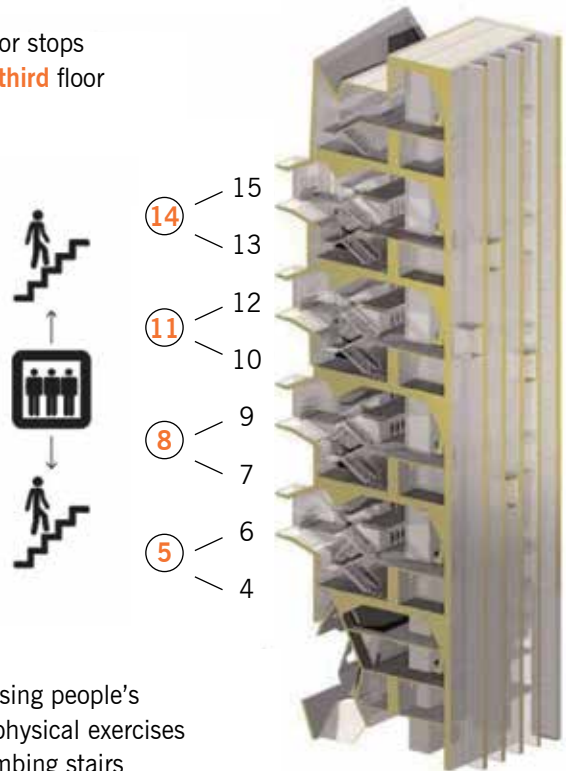
Cellular, single-use urbanism is increasingly associated with sedentary lifestyles. These urban environments, whether high or low density, built during recent decades on the periphery of cities, make it difficult to stay active and fit on a daily basis. Both the horizontal sprawl of the United States and the high and compact apartment units of China and Hong Kong create single-use compounds that challenge our ability to walk, play, or even interact with neighbors.

While Hong Kong has avoided many of the problems created by low-density urban sprawl, such as the overreliance on the automobile and the sedentary time driving entails, it has created a city of transit-oriented development nodes largely in 100+ meter towers. These towers in their current form promote more isolated lives and are propagating childhood obesity and diabetes.

Large single-use districts often collectively form a kind of “suburban cellulite” of disjointed development zones devoid of human scale at the neighborhood or city level. In that context, mixed-use reprogramming with human metrics is a potential component in offsetting the challenge through more salutogenic urban designs that support health and well-being.

Skip Stop Elevator

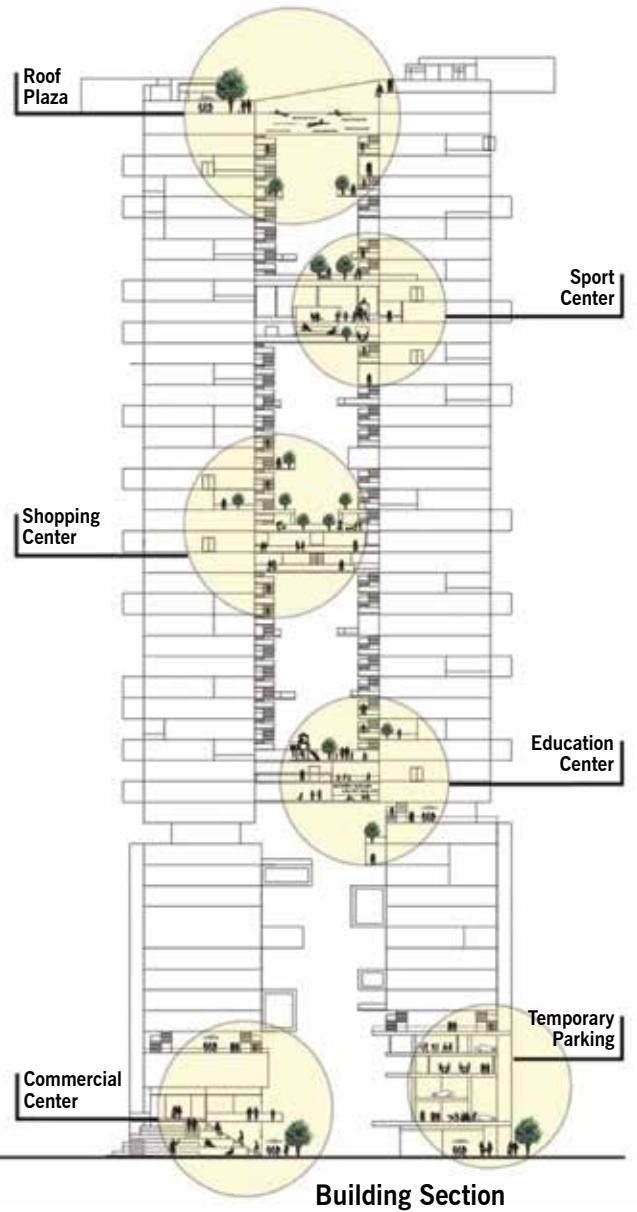
Elevator stops every **third** floor



Increasing people's daily physical exercises by climbing stairs

With the imperative to build high-density environments during a period of unprecedented global urbanization, a central question to our human well-being concerns how we appropriately build healthier and more civically engaging neighborhood clusters. Undoubtedly, this should include the reconsideration of mid-rise developments, such as the new Wilanow district in Poland, which has shown outstanding health statistics after 10 years of inhabitation. People can also live healthier lives with high-rise development, but such environments must be rethought and reshaped with a focus on healthy exposure to wellness factors at both the building and district levels that move our behavior toward a healthier lifestyle.

Guy Perry is Executive Director of Buildings + Places, APAC with AECOM.



(Illustration by Chang Zhaoxing)



Wilanów district of Warsaw
(Tomasz Szediwy)



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KEVIN HSU
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The Human Cities Approach to Healthy and Resilient Cities

HEALTHY AND RESILIENT CITIES ARE HUMAN CENTERED: they invest in people-friendly infrastructure to encourage active lifestyles and vibrant public spaces. However, a human-centered city requires more than infrastructure: beyond providing for physical needs—shelter, food, and livelihood—they empower citizens to fulfill higher-order needs for belonging, esteem, and a sense of purpose and identity.

Copenhagen, New York, Taipei, Seoul, and other forward-thinking municipalities have successfully used elements of a human-centered approach to improve air quality, spur economic growth, reduce obesity and respiratory disease, and facilitate social interaction. In striving to be human cities, they become places where people *want* to live, play, work, and thrive.

We outline three guiding principles of this multifaceted approach:

1. FOCUS ON HUMAN-ORIENTED INFRASTRUCTURE

Economic development alone does not generate higher levels of social health and well-being. As cities grow, they require infrastructure that not only addresses functional needs but also supports human aspirations.

Human cities locate good jobs near affordable housing and offer citizens a multitude of transportation options to reach them. Not only does this reduce greenhouse gas emissions and stressful commutes, it allows people to spend more time with their families and loved ones. Research confirms that people who bike to work report greater satisfaction with their lives, while walking allows people to think more creatively.

Human-oriented infrastructure is empowering and enabling. To build human cities, multi-sector partnerships are needed to bring together citizen groups and public and semi-public entities. This ensures that projects have the investment community support to activate and sustain their operations.

2. CREATE INCLUSIVE PUBLIC SPACES FOR EVERYONE

The human city attracts people from diverse backgrounds and economic levels, providing equal opportunities for people to enjoy a high quality of life. Take public space as an example: access to natural environments can reduce stress, fight depression, and lower blood pressure while spurring economic and social benefits. The Cheonggyecheon project in Seoul, which restored a highway to a riverine park, has mitigated the urban heat island effect and become a treasured city resource. Once an abandoned railroad track, the High Line Park in New York City now attracts more than 3.7 million visitors a year and has brought in more than \$2 billion USD in private investment. Taipei's thriving night markets attract residents of all age groups and income levels, forming hubs of social interaction and commerce, while paying homage to traditional practices. Human cities invest in public space projects such as these and ensure they are accessible to all residents, spurring greater economic and social well-being.

3. FACILITATE CIVIC PARTICIPATION AND INCLUSION

Healthy and resilient cities encourage civic action and participation. After Hurricane Sandy in New York City, relief came first in the form of individuals who self-organized to deliver supplies to neighbors and of grassroots groups that understood their communities. When our physical infrastructure fails, the key to community resilience is leveraging and strengthening our social networks.

Cities today face complex challenges that can only be solved with authentic participation. Planners and architects can serve as expert facilitators to invite collaboration and bring multiple viewpoints to the table, as seen with successful participatory budgeting and place-making initiatives around the world. Human cities encourage people to feel a sense of ownership and become stewards of the city, so that urban development projects become catalysts for long-term, positive change.

In addressing both physical and social infrastructure, human cities nurture our best selves, creating space for communities, groups, and individuals to thrive.

Deland Chan is a Lecturer in Urban Studies at Stanford University. Kevin Hsu is Associate Research Scientist at Walt Disney Imagineering and a Lecturer in Urban Studies at Stanford University.



Shanghai Expo Park (Image via Flickr/hjw223)

FORUM PARTICIPANT REFLECTIONS

“I will write down what I’ve learned from the Forum, send this report to my boss on how to invest in healthy city projects. Share ideas with my classmates, too.”

“I will grow a garden in my backyard and pay better attention to the greenery in my city.”

“I’m a mechanical engineer. I’ve taken a lot of advice from this conference. I will recommend that my team works with developers and architects to make sure the buildings are safe in terms of air quality and indoor monitoring station design.”

“I will engage my human capital clients in this topic by convening roundtable discussions in the Asia-Pacific region on this.”

“We can all personally lead a more active life. I will also use social media more to spread the message more. Let’s all use public spaces more to pressure city officials to create good public spaces.”

“For my architecture NGO, I will engage partners here in China to discuss the topic of resiliency in cities.”

“I will hold a meeting at my company on these PCSI topics. I want to particularly emphasize smashing down superblocks.”

“This is really an international exchange; the plenary panel discussion with different themes met the needs and interests of different groups of people. The roundtable discussions provided all the participants the opportunity to speak and share their ideas.”

“This is a forum that is about more than just listening and responding, but taking action and harnessing the collective thought power of different specialized fields.”

“I will talk to our chief executive to get his buy-in to build healthier and more resilient cities.”

“The interactive roundtables created open dialogue to address the issues and led to interesting debate over potential solutions.”

“What I liked most about the Forum was the energy. Everyone was well versed in their subject matter. People attend this Forum because they genuinely care about the topic.”



Beijing Forum participants at the roundtable discussions (Asia Society/Urban Land Institute)

“The most vital benefit of PCSI is addressing emerging or exacerbated problems in the built environment.”

“It is beneficial for panels to be more interactive, present data on the challenge, and create honest dialogue regarding successes, limitations, and failures in proposed or executed solutions.”

“The PCSI forum created a unique, international platform to connect with industry peers and incubate global knowledge on creating healthy and resilient cities.”

ACKNOWLEDGEMENTS

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