2016

12 JULY | SINGAPORE

3RD MEGACITY THINK TANK ALLIANCE FORUM

MEGACITY MOBILITY SYSTEMS & SOLUTIONS

CENTRE for LiveableCities SINGAPORE

Megacity Think Tank Alliance MeTTA

CONTENTS

1 ABOUT METTA

Formed in 2014 in Seoul, **Megacity Think Tank Alliance (MeTTA)** is an international alliance of urban institutes aiming to provide solutions to problems that a megacity faces and subsequently to improve the quality of life of its citizens.

By building an international network, MeTTA plans to share information on urban problems and solutions and to coordinate their problem-solving efforts. Through a substantial and consistent cooperation with its members, MeTTA will support megacity governments to form a mutual relationship for collaboration and by encouraging private partnerships, to raise the quality of life of citizens.

The 3rd MeTTA Forum was hosted by the **Singapore Centre for Liveable Cities (CLC)** on 12 July 2016 at Sands Expo & Convention Centre, Marina Bay Sands Singapore. More than 50 participants from both local and international agencies and institutes attended the Forum.

Image Credit: Centre for Liveable Cities

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MeTTA Think Tank Members

- Busan Development Institute (BDI)
- Beijing Municipal Institute of City Planning and Design (BICP)
- Ho Chi Minh Institute for Development Studies (HIDS)
- Shanghai Urban Planning and Design Research Institute (SUPDRI)
- Singapore Centre for Liveable Cities (CLC)
- The Seoul Institute (SI)
- Tianjin Urban Planning & Design Institute (TUPDI)

3

MeTTA Associate Members

- CityNET
- ICLEI
- Metropolis

Megacity Mobility Systems & Solutions

Megacities are under increasing pressure from the rapid expansion of urban development and population growth. Amongst the many challenges, strained city transportation systems and constrained mobility are urgent concerns that demand innovative solutions.

Traffic congestion causes increased travelling time and productivity loss. Slow traffic from the conventional motorised city transport system also contributes to increased fuel consumption and environmental pollution.

The 3rd MeTTA Forum seeks to exchange information and share best practices on megacity mobility systems. The forum also aims to provide city planners and policymakers with innovative mobility solutions to achieve the optimal balance between efficient space use, equitable social design, and environmental benefits. The discussion over mobility systems and solutions, a crucial element impacting megacity living experience, will enhance the quality of life for urban residents and contribute to the establishment of sustainable and liveable cities.

3 THE MOBILITY IMPERATIVE

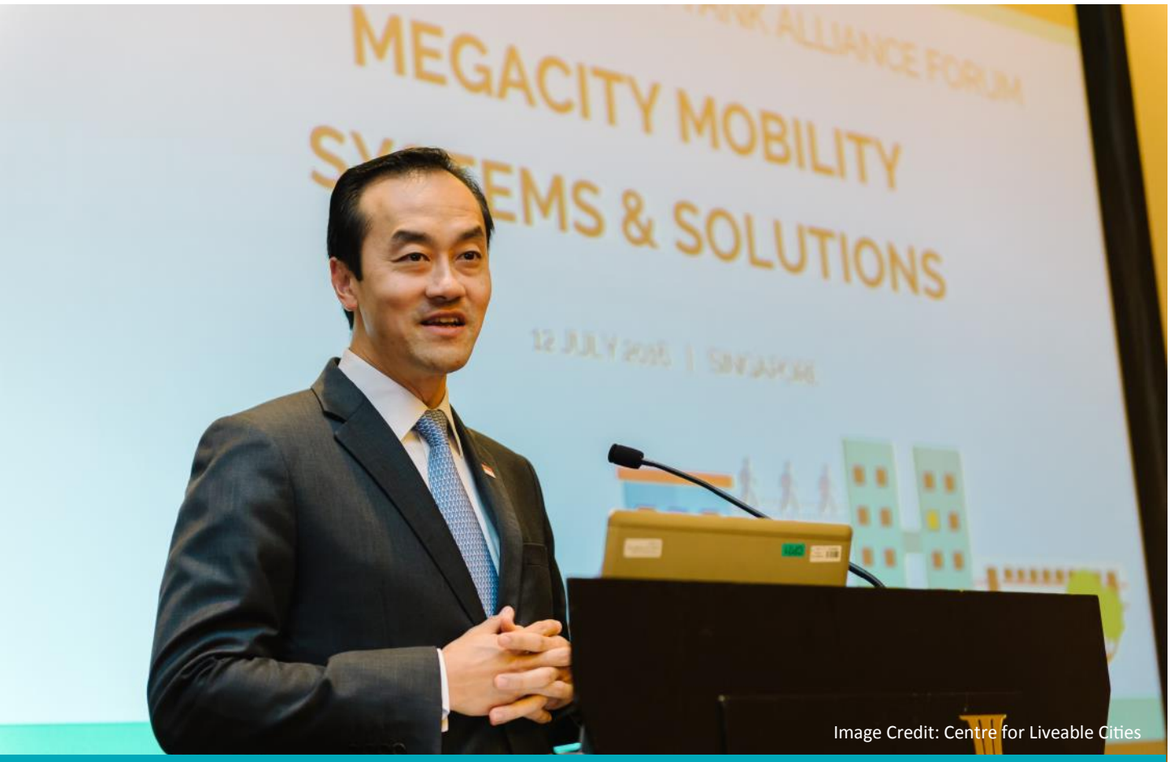


Image Credit: Centre for Liveable Cities

Dr Koh Poh Koon
Minister of State for the Ministry of National Development & Ministry of Trade and Industry

The 3rd MeTTA Forum was graced by Guest-of-Honour, **Dr Koh Poh Koon**, Minister of State for the Ministry of National Development and Ministry of Trade and Industry.

Dr Koh highlighted that Asia is one of the fastest urbanising regions in the world, with **16** of the world's 28 megacities. By 2050, the percentage of urban population living in Asian cities is projected to increase from 48% to **61%.**

> **"We need to ensure that these mobility systems that we create, these solutions that we come up with, complement the urban environment that we live in."**

Many cities today are experiencing congestion in the built environment or transport systems. Urban mobility becomes one of the perennial challenges that all megacities face.

Dr Koh underlined the importance of complementing the design of mobility systems and solutions with the lifestyles of citizens and the creation of a more liveable urban environment.

Dr Koh also shared policies from Singapore's early years to ensure that everyone can move around comfortably in a relatively congestion-free city. They include having a rigorous land use and transport planning framework and building walkways for pedestrians along every street.

The Singapore Sustainability Blueprint 2015 also introduced a vision of a "Car-Lite Singapore" to encourage sustainable travel modes such as taking public transport, walking and cycling.

Technology is utilized to explore alternative forms of city mobility. Singapore has been creating car-free spaces for instance, initiatives like Car Free Sunday that frees up roads to be converted into spaces where people can conduct activities that make the city life more vibrant.

3 THE MOBILITY IMPERATIVE

EcoMoobile traffic in a main street in Suwon City, South Korea

Image Credit:
ICLEI

In his keynote address, **Mr Konrad Otto-Zimmermann**, Creative Director of The Urban Idea and Former Secretary General of ICLEI, argued that current thinking about urban mobility needs to go beyond technical or operational systems, to look at how public spaces should be used instead.

With cars growing in demand and becoming bigger in design, they are taking up a disproportionate amount of urban space, investment and planning attention, at the expense of other human activities.

Mr Otto-Zimmermann cited the need to downsize vehicles back to human scale, decelerate speeds for safety and fuel economy, and reduce the number of actual cars in our cities. Instead, he suggested that cities should pursue EcoMobility, in which the first choice of transport should be walking then cycling, then public transport, and shared electric vehicles.

> **“Why do we need 3 tons of steel to transport a person of 60kg weight?”**

Image Credit: The Urban Ideas

Image Credit:
Centre for Liveable Cities

Mr Konrad Otto-Zimmermann
Creative Director of The Urban Idea and Former Secretary General of ICLEI

4 CHALLENGES TO MOBILITY

The basic yet mammoth task of developing new infrastructure to cope with rapid population growth, takes time, significant investment, and often involves reviewing the city as an entire system, rather than on a piece-meal basis.

Beijing, a city of over **21 million** people, sprawls over **16,410 km²** – twice the land area of Shanghai. **63%** of Beijing's land area is mountainous. More a conglomerate of different urban and rural areas than a coherent city, Beijing, as the Chinese capital, serves a variety of political, cultural, diplomatic and scientific roles, beyond the functions of a regular city. The city's rapid growth and large scale has led to problems of traffic congestion; metro and bus services account for **48%** of resident trips. The Great Beijing Metropolitan Area is also being reorganised, both to decentralise some functions and to combine others – these have implications for transport planning.

Image Credit: Centre for Liveable Cities

Mr Du Liqun
Vice President, Beijing Municipal Institute of City Planning and Design

In order to develop a more liveable environment, Beijing is focusing on **eco-friendly, multimodal transportation system** to serve its future needs. Beijing has invested heavily in metro construction to make its subway system more accessible to residents. It is also providing for a variety of transport modes: including light and suburban rail, as well as walking and cycling friendly paths.

This being complemented by a range of measures, such as electric buses and other vehicles, and traffic management to limit private cars. The decentralisation of urban functions, jobs and residences to multiple centres should also help to reduce pressure on the current central areas of the city. Jobs and housing will be planned along the new mass transit corridor linking Central Beijing with outlying districts, which will have their own rich network of public transport options.

BEIJING

Sustainable Urban Mobility Plan

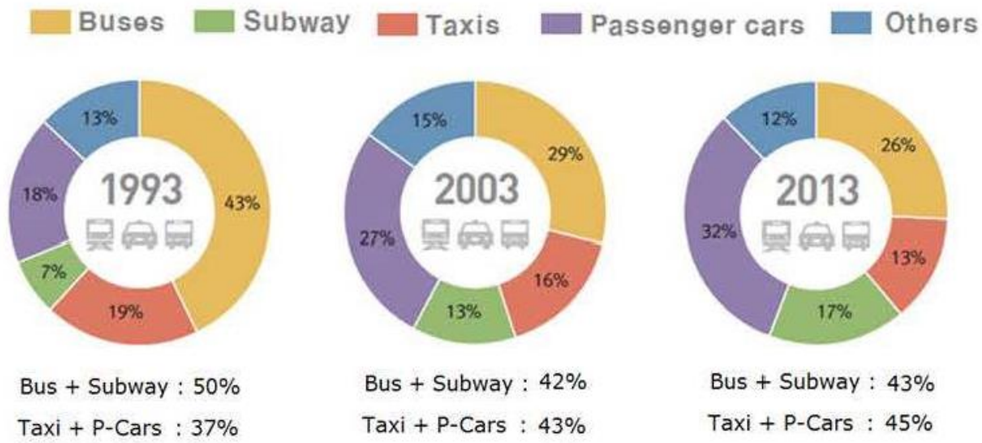
4 CHALLENGES TO MOBILITY

Geography can also impose imposes significant constraints. With limited flatlands for urban use due to the surrounding landscape of mountains and rivers, Green Belt areas previously protected from development had to be opened up. As a result, the city's land area has more than doubled, from 122 km² in 1985 to 260 km² in 2010. This in turn has led to a spatial mismatch, in which there is a high resident population in the older parts of the city, but more workplaces in the newer areas, which are less well served by public transport and more accessible by car. This suggests a trend towards greater car use as the city grows, which the city hopes to arrest. By building a new urban and commuter rail network, the city hopes to connect its older districts with the expanding new areas, achieving a more balanced mode share of transport by 2030, and a better quality of life for its residents.

Busan also faces challenges of integration: the different public transport modes and different types of rail network, including mass and light rapid transit and trams, have to be integrated with each other. In turn they also have to be integrated with other elements of the city's transport system, including pedestrian and cycling paths, taxis, cars and other informal transport services, as well as the build environment. Financing and institutional mechanisms to support these developments also have to be sought.

BUSAN

New Rail Plan for Integration



2030

53%	37%	10%
Bus + Subway	Taxi + P-Car	Others

Source: Busan Development Institute (BDI)


Image Credit: Centre for Liveable Cities

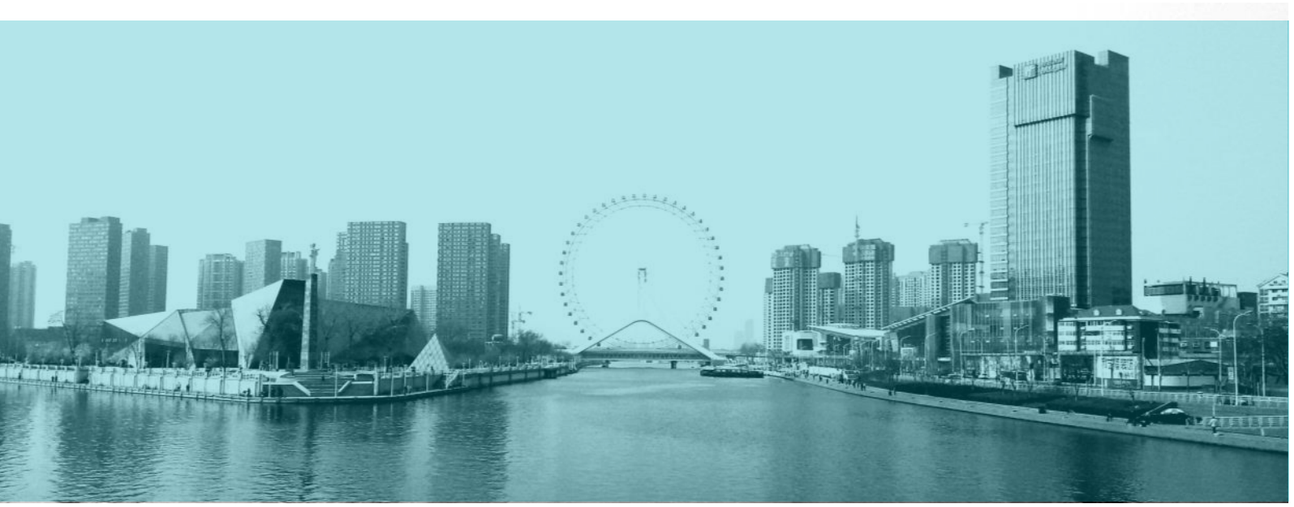
Dr Sungchul Kang
President, Busan Development Institute (BDI)


Image Credit: Centre for Liveable Cities

Dr Lee Sang-kug
Research Fellow, BDI

TIANJIN

Transportation Patterns and Usage



The Chinese city of Tianjin, which covers a land area of almost **12,000 km²**, and has a resident population of **15.46 million**, has two main metropolitan hubs, the Central City and Tanggu Area. The Central City along has a population of 5.64 million, at densities (16,836 persons per km²) exceeding the city's master-planning forecasts. The Tanggu Area has a population of 1.5million and density of 5,535 persons per km².

Over 200,000 persons commute between the two hubs every working day, taking about **71 minutes** on average to travel the 50 km between the two urban centres.

Tianjin is investing significantly in its local and regional infrastructure and incentivising public transport. As a thriving railway, port and logistics hub, Tianjin is set to grow rapidly in the years to come, especially in light of the development of the Bohai Economic Rim.

For sustainable growth, the city must be able to address its transportation needs and congestion challenges by encouraging much greater use of public transport, generating more mixed-use developments, and diversifying its urban functions.

Image Credit: Centre for Liveable Cities

Mr Zheng Xiang Yang
Chief Planner, Tianjin Urban Planning & Design Institute (TUPDI)

4 CHALLENGES TO MOBILITY

City Structure Drives Mobility Behaviour

Public transport accounts for only **10%** of total transport volumes of Ho Chi Minh City (HCMC) in Vietnam. Motorbikes are popular with residents – there are some 675 motorbikes per 1,000 residents – and its population of **over 300,000 motorbikes** is increasing by **10%** annually. However, the current road infrastructure cannot meet rising demand, and accident rates among motor cyclists are high. Hence HCMC has been trying to find ways to reduce use of motorbikes.

Despite significant state investment in the bus system, including hefty subsidies for bus tickets, bus use has in fact declined from 2013, to about **6.2%** of transport trips, despite a significant increase in overall trips made.

Taxis, which are regarded as transport in HCMC, account for **3.8%**. A survey revealed that the main reason for this phenomenon is the structure of the city: HCMC has many small alleyways that are not conducive to bus traffic, but are accessible by motorbike or car.

Image Credit: Centre for Liveable Cities

Dr Nguyen Van Trinh

Vice President, Ho Chi Minh City Institute for Development Studies (HIDS)

A combination of push and pull solutions are needed to address these challenges: the city needs to be restructured, and in some areas rebuilt. Multiple hubs will relieve congestion in the centre, with economic and residential uses segregated, and more pedestrianised streets.

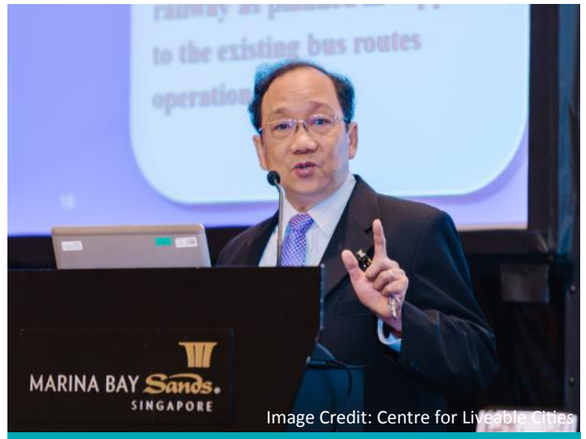


Image Credit: Centre for Liveable Cities

Dr Du Phuoc Tan

Head of Department of Urban Management Studies, HIDS

The population of motorbikes will have to be limited through fiscal and other policies, even as public transport is improved with more depots and intermediate stations to facilitate passenger traffic, as well as a future urban rail network in addition to bus routes.

5 DESIGNING FOR MOBILITY

A commitment to the improvement of mobility, backed by effective regulation and enforcement, are vital for successful transformation. The experiences of Seoul and Singapore in promoting walking and cycling as part of urban mobility were the subject of a joint study by the Centre for Liveable Cities and the Seoul Institute titled "Walkable and Bikeable Cities: Lessons from Seoul and Singapore". Their findings suggest that it is important for cities to help their citizens understand, appreciate and welcome urban changes being made, including new approaches to improving mobility and street life in the city.

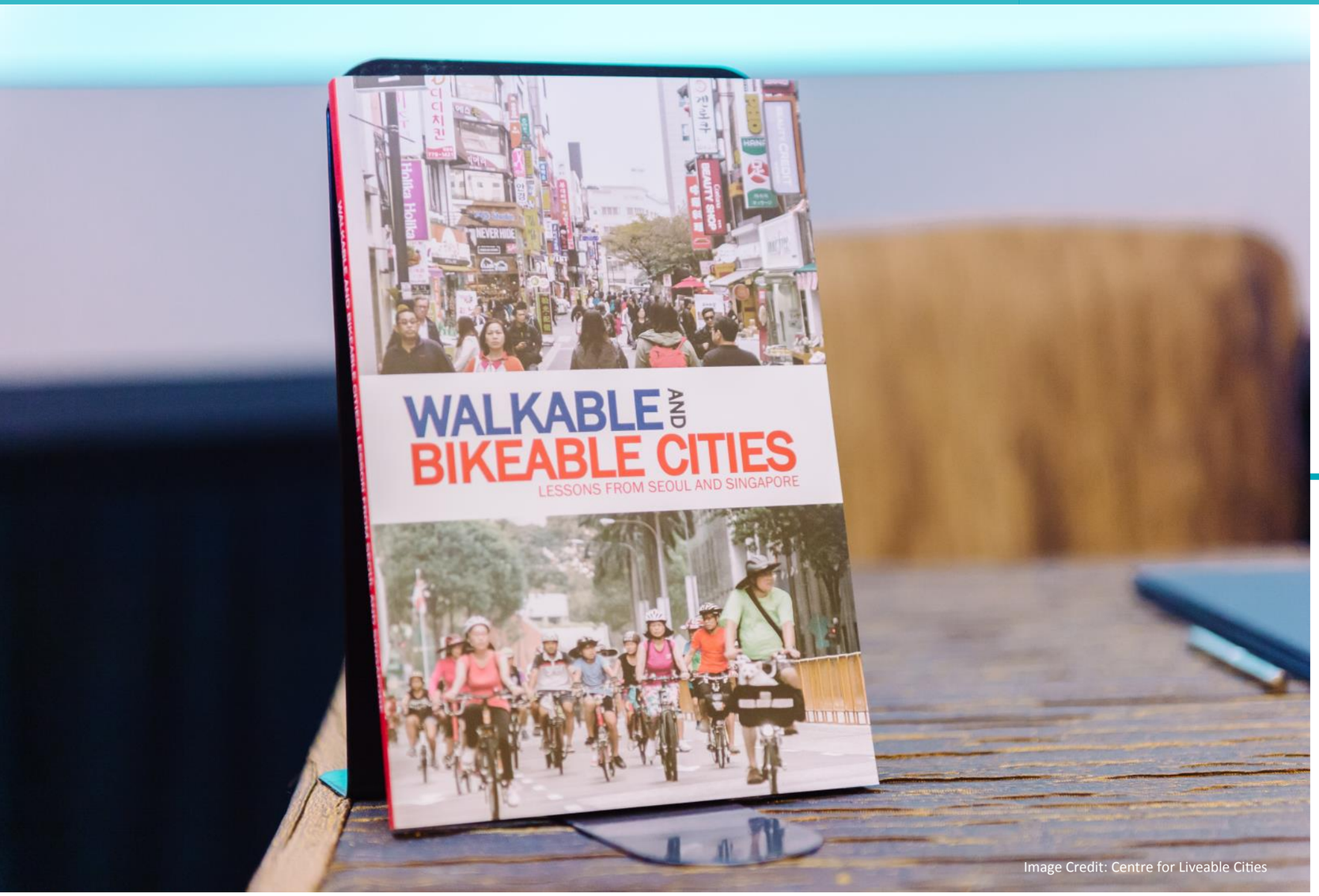


Image Credit: Centre for Liveable Cities

SEOUL & SINGAPORE

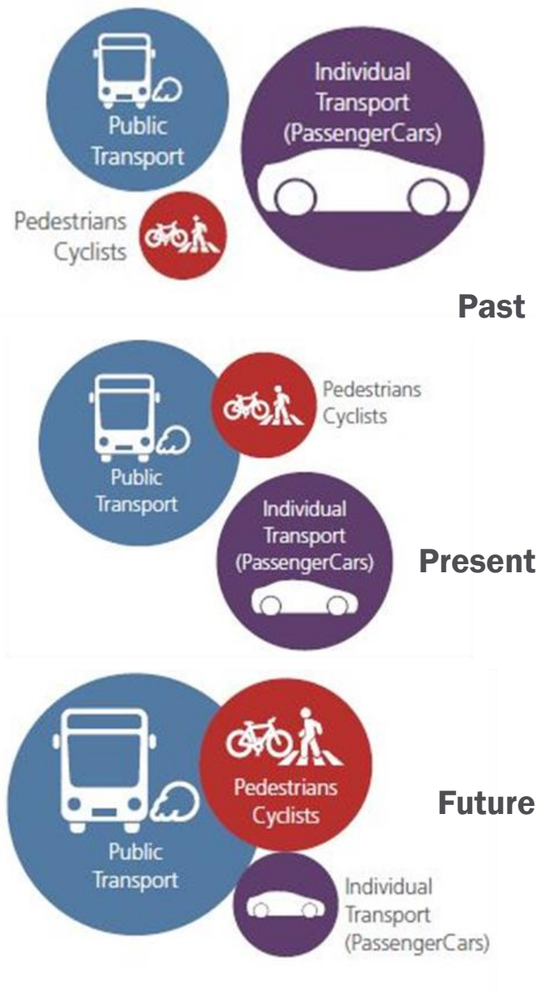
Creating Walkable and Bikeable Cities

5 DESIGNING FOR MOBILITY

Seoul, under increasingly prohibitive pressure from vehicular traffic and congestion, decided in 2000 to shift to a People-First transport system, with a heavy emphasis on public transport and non-vehicular mobility options. It set ambition **"Triple 30" goals**: by 2030, to reduce passenger car travel by 30%, reduce average commute time via public transport by 30%, and to increase the area covered by green transport to 30%.

It began to pursue a **"people-oriented mobility policy"** that prioritises pedestrian and bicycle traffic over motorised vehicles. Earlier policies to punish car use in favour of pedestrians proved unpopular and ineffective. Instead of framing the shift in mobility as a zero-sum game, Seoul sought instead to create **"universal benefits"** to increase the value of walking for everyone, since even drivers are pedestrians from time to time.

Narrow shopping streets were widened or closed to allow for more useful car-free spaces. Pilot projects such as **Yonsei-Ro Transit Mall** exemplified the benefits of pedestrian-friendly environments, bringing vibrant commercial life back to the streets, increasing footfall, satisfaction, and reducing the rate of accidents.



Source: The Seoul Institute (SI)

Road space was reclaimed to allow for more sidewalks and crosswalks, allowing more kiosks and other street level activities to thrive. An evidence-based approach towards the assessment of these "quick-win" pilot initiatives helped to secure buy-in from planning authorities, the public, and other stakeholders, allowing successful mobility concepts to be applied to other parts of the city.

Image Credit: Centre for Liveable Cities

Dr Soo-hyun Kim
President, The Seoul Institute (SI)

5 DESIGNING FOR MOBILITY

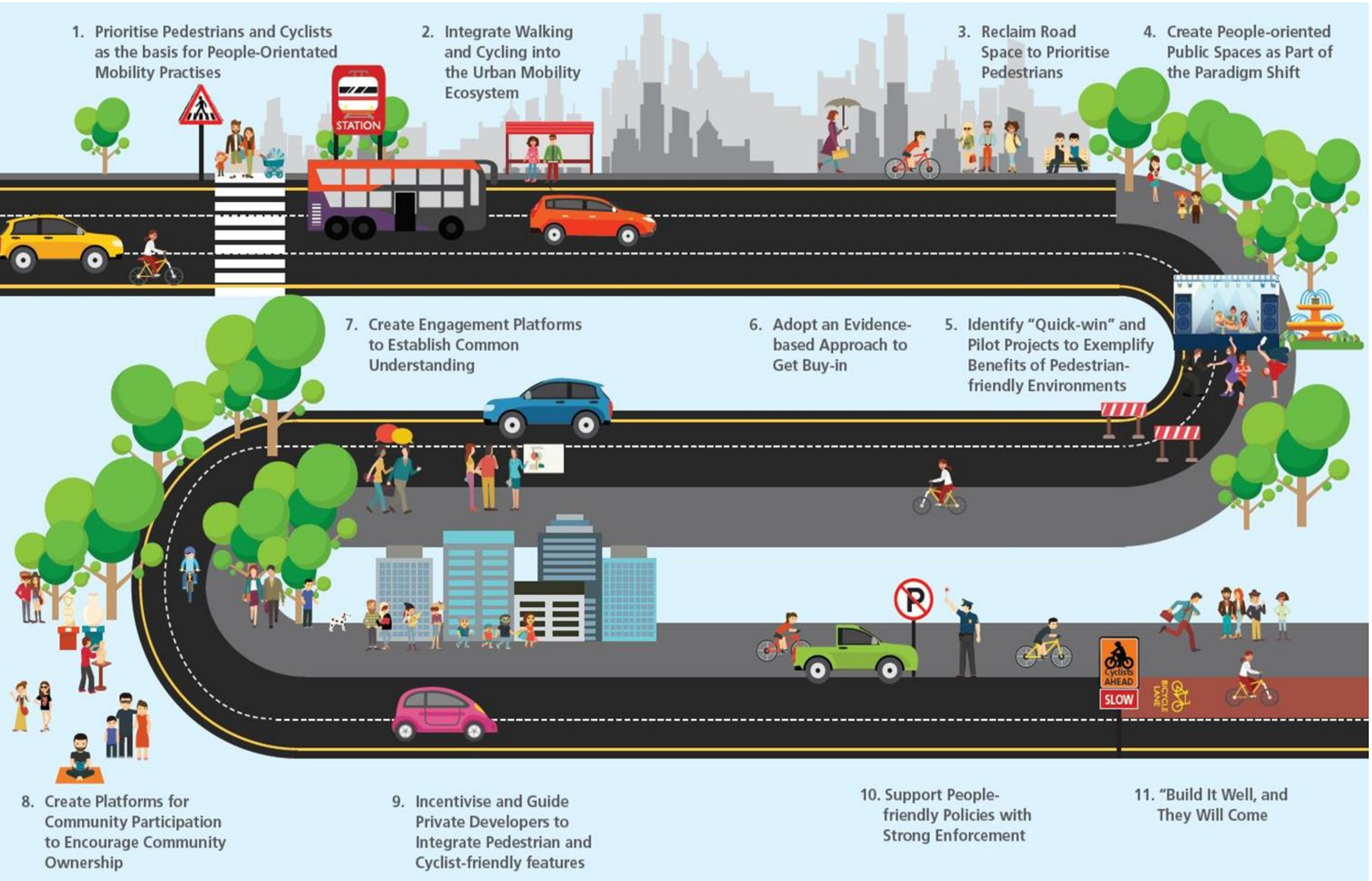



Image Credit: Centre for Liveable Cities

Dr Limin Hee
Director, Research, CLC


Image Credit: Centre for Liveable Cities

Dr Chang Yi
Director, Global Outreach Team, SI

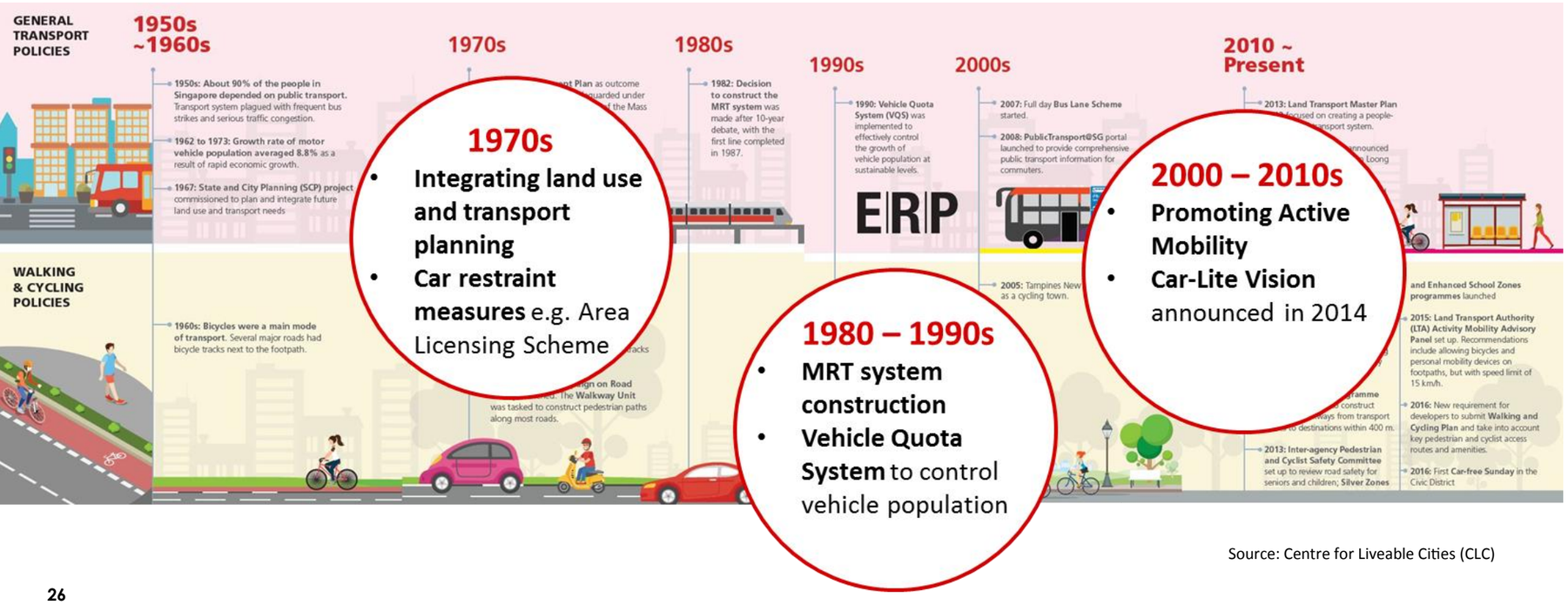
5 DESIGNING FOR MOBILITY

Beyond commitment, supportive regulation and effective enforcement, a high quality public transport system is a prerequisite to pursuing more aggressive **pedestrian-friendly policies**. Since the earliest years of independence, land scarce Singapore has been mindful of the impact of vehicular traffic on congestion, land use, pollution and other externalities.

Measures to restrain car use, since as the Area Licensing Scheme, were introduced in the 1970s, along with town planning based along transport routes to support public transport use. These were followed by the development of the Mass Rapid Transit (MRT) rail system and vehicle quota controls in the 1980s and 1990s.

Government regulations and incentives have been used to prompt private developers to better **integrate pedestrian and cyclist-friendly features** into their buildings, while comprehensive urban planning guidelines direct desirable development, undertaken by the private sector. As a result, notable areas such as the Orchard Road shopping district have become thriving districts conducive to street life.

From 2000 onwards, Singapore's planning authorities began to promote **Active Mobility**, including the development of intra-town cycling networks across the island to facilitate safe and convenient short distance cycling within Singapore's public housing estates. A **Car-Lite vision** was introduced in 2014; place-based interventions would be used to shift public mindsets towards a car-lite culture. Street closures, successfully piloted in Club Street in 2013, have since been extended to other parts of the city, further demonstrating the value of **pedestrian-oriented street and community life**. The success of these road closures were supported by strong enforcement on illegal parking, while maintaining access driveways to balance outdoor dining opportunities with pedestrian access.



Source: Centre for Liveable Cities (CLC)

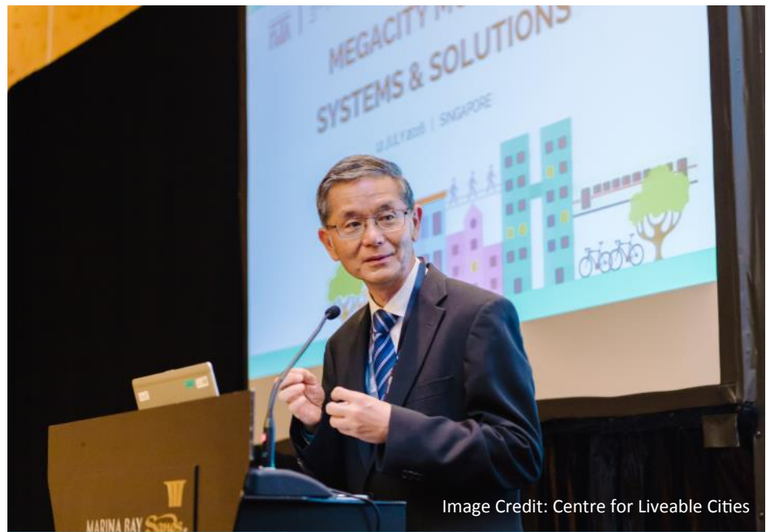


Image Credit: Centre for Liveable Cities

Mr Khoo Teng Chye

Executive Director, Centre for Liveable Cities (CLC)

5 DESIGNING FOR MOBILITY


Image Credit: Centre for Liveable Cities

Ms ZHAO Baojing

Vice President, Shanghai Urban Planning and Design Research Institute (SUPDRI)

The Chinese city of Shanghai saw a doubling of both motor vehicles and public transport mileage from 2009 to 2014. In the same period, the number of people who chose walking and non-motor options decrease, while private car use continued to grow.

A comprehensive review of the city's **urban development guidelines** focused on maintain the liveability and unique public character of Shanghai's streets and street life, and to help achieve consensus on how the city could continue to develop. While these guidelines were not statutory, they served as a basis for discussions with multiple stakeholders on how streets could be retrofitted.

The guidelines paid attention to the **design of the space and environment**, rather than engineering priorities, and refocused development away from road traffic to city block development, and the use of street space. Guidelines for streets sought **Safe, Green, Vigorous and Smart streets**. These included measures such as limiting street traffic speeds and creating better intersections to allow for safer walking and cycling, prioritising more economical transport options and green spaces, nurturing a good mix of street-level design and activities as well as artistic and cultural attractions, and better monitoring and integration of public street facilities using smart technologies. Together, these integrated solutions were aimed at helping to establish **better land use** and promote **community life** in Shanghai's dense city districts.

The guidelines were successfully applied in the rejuvenation of areas such as Fenggu Road, Huangshi Road and East Zhongshan No 1 Road (Shanghai's iconic Bund district).

SHANGHAI

Humanised Street Design and Construction

> **"The street is the most important public space"**


Image Credit: Centre for Liveable Cities

Ms Ge Yan

Senior Engineer, SUPDRI

6 INSPIRING MOBILITY

In order to succeed in improving mobility, megacities have to focus not on infrastructure alone but on addressing citizens' real needs and way of life.

Emphasising this point in his presentation, **Mr Sunil Dubey**, Senior Advisor of the urban think tank Metropolis argued that megacities must not only be people-centric, but also think not only in terms of individuals but in terms of communities. This, he posits, reverses prior planning assumptions based on individual lifestyles and needs: the modern citizen does not want more infrastructure, but an urban village. He further suggested that there was already plenty of knowledge available, but the challenge was to harness and apply this knowledge to different domains – in other words, to innovate – in making planning decisions. Taken in concert, Mr Dubey felt that the connectedness between cities have been and would continue to be key to the development of cities, by facilitating learning and collaboration.

While trust in a global sense has been between nations (such as with climate goals determined at the national level), cities are now paying attention to their own local issues. By connecting cities directly to each other, "clouds of trust" could be nurtured that can help peer cities quickly find and adapt solutions more relevant to their needs.

> **"Mobility is the fastest connector of urban communities."**

Image Credit: Centre for Liveable Cities

Mr Sunil Dubey
Senior Advisor, Metropolis

How can we envision what is possible with mobility in our megacities in ways that can inspire learning and action?

Keynote speaker Konrad Otto-Zimmermann offered a promising new approach. His organisation's CityScene methodology was applied to create a real-time demonstration of a variety of car-free mobility concepts in an actual neighbourhood for a month, with images that can be shared around the world.

Positioned as a festival occasion to keep the event accessible, friendly, playful and authentic, the first EcoMobility World Festival was held in Suwon, Korean in 2014, in a neighbourhood of about 4000 m². The streets were cleared of all vehicular traffic. Artists were brought in to enliven the old neighbourhood in which the festival was held. The duration of the event was long enough to have an impact on resident's routines. For a month, residents reclaimed the streets for other uses, fostering greater social interaction, learning and sense of ownership of urban spaces left free of traffic. A million visits were counted during the month. Even after the festival ended, many residents wanted to hold on to islands of car-free zones in the neighbourhood. The festival was subsequently adapted by other cities elsewhere, including the Sandton CBD in Johannesburg.

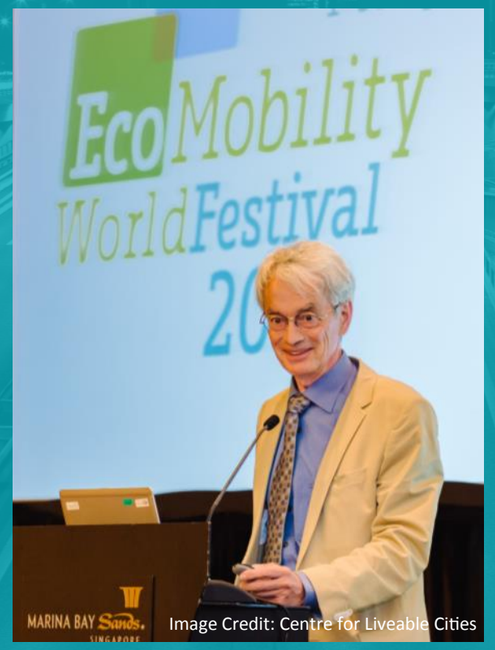


Image Credit: Centre for Liveable Cities

Mr Konrad Otto-Zimmermann
Creative Director of The Urban Idea
Former Secretary General of ICLEI

7 CONCLUSION

The exchange in the 3rd Megacity Think Tank Alliance (MeTTA) Forum underlined the importance of strong, sustained commitment from megacities to improve mobility, which are vital to their liveability and sustainability. Congestion, inadequate transport links or slow travel times impede cities' ability to thrive. Investments are required to review and rethink mobility in more sustainable and flexible ways to improve the quality of life for citizens.

Inevitably, trade-offs must be measured and made – conventional motor traffic is unsustainable and new options must be explored ahead of demand. Planning for megacity mobility is therefore a delicate balancing act between a city's present dynamics and its future possibilities.

Governments play a vital role not only in laying core infrastructure, but also establishing guidelines and enforcing regulations that fundamentally shape a city's growth path and priorities. Long term views and strategies need to be in place to facilitate the coordination to enhance mobility in the cities. Resident citizens, businesses and other stakeholders should be engaged and consulted to forge consensus on the design of the urban communities that they envision.

In the global urban networks, cities can work with each other to accelerate learning, and to share innovations that may be effective across urban environments. Cities can examine the mobility concepts and projects piloted in other cities for inspiration and adaptation.

Cities are not alone in their quest for better urban solutions to benefit the way peoples live, work and play in the fastest growing urban centres in the world. The MeTTA forum provides this platform to establish partnerships and collaborations in the Alliance.

CONTRIBUTIONS

COVER IMAGE

PHOTO@ ICLEI

ECOMOBILITY VEHICLES PARADE THROUGH CAR-FREE HAENGGUNG-DONG NEIGHBORHOOD OF SUWON CITY.

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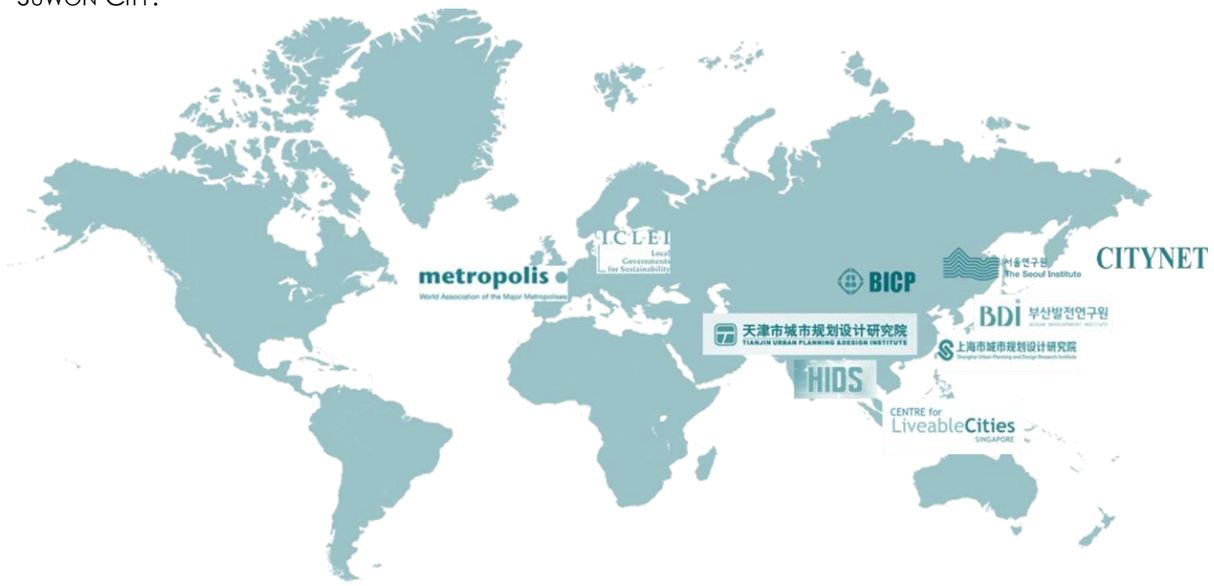

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